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EEI BULLETIN

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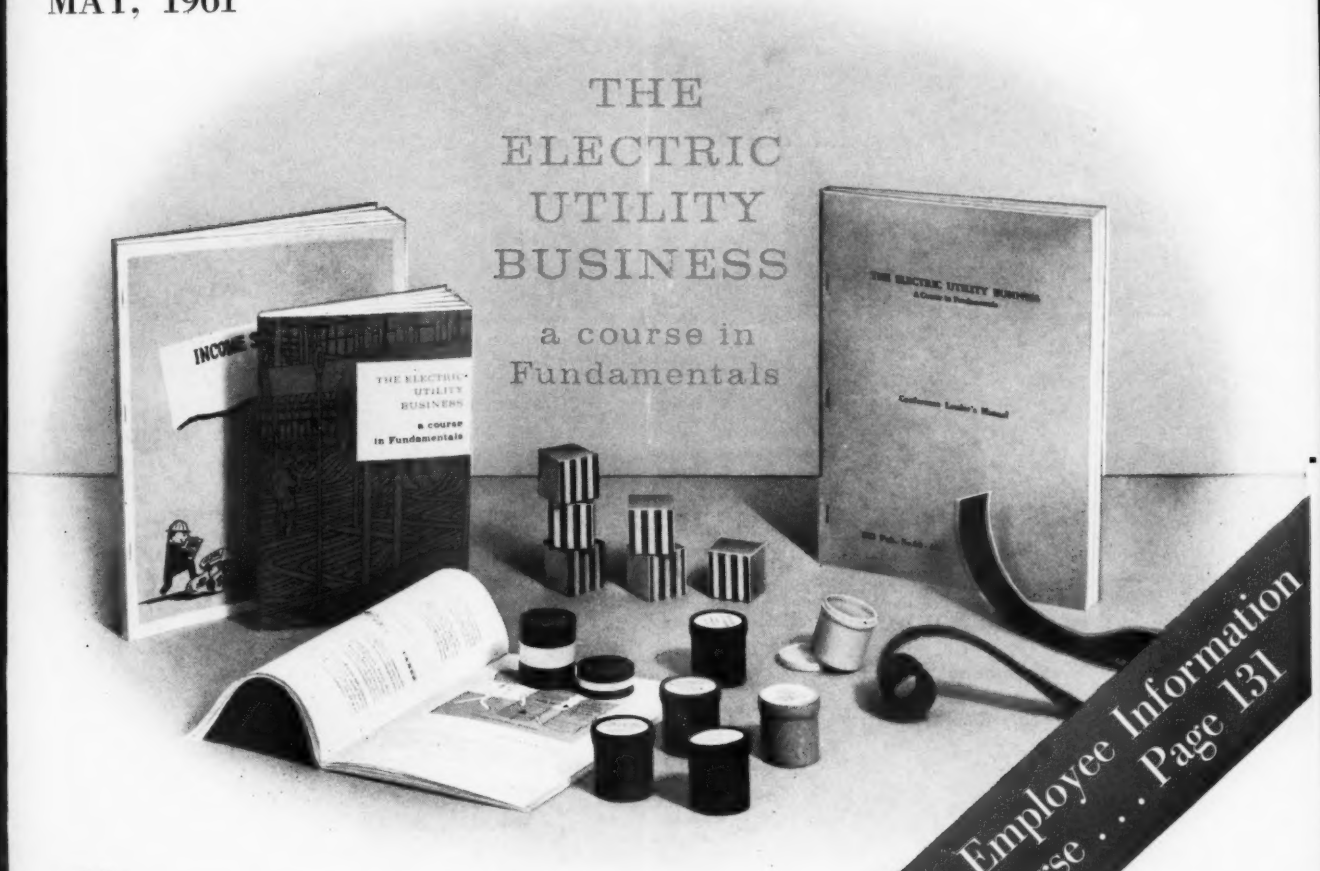


New Employee Information Course . . . Page 131

PUBLISHED BY EDISON ELECTRIC INSTITUTE

ELECTRIC UTILITY INDUSTRY Statistics IN THE UNITED STATES

for JANUARY 1961

Current Statistical Data Covering 100 Percent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities) — January, 1961

	Contiguous U. S. 1961	Contiguous U. S. 1960	%	Alaska and Hawaii, 1961
SOURCE AND DISPOSAL OF ENERGY				
NET GENERATION* (Kwhr in Thousands)				
By Fuel Burning Plants	55,803,267	51,006,683	+ 9.4	
By Water Power Plants	10,756,038	13,013,886	—17.3	
Total Net Generation	**66,559,305**	**64,020,569**	**+ 4.0**	
Net Imports from Canada and Mexico	138,142	334,690	—58.7	
Purchases from Industrial Sources	129,245	225,319	—42.6	
Energy Used by Producer	935,143	830,134‡	+12.6	
Net Energy for Distribution	**65,891,549**	**63,750,444‡**	**+ 3.4**	
Energy Lost and Unaccounted for	6,259,736	5,954,637‡	+ 5.1	
Company Use and Free Service	195,814	180,706‡	+ 8.4	
Sales to Ultimate Customers	**59,435,999**	**57,615,101‡**	**+ 3.2**	
CLASSIFICATION OF SALES†				
NUMBER OF CUSTOMERS—As of January 31	**1961**	**1960‡**		
Residential	51,194,429	50,395,159	+ 1.6	172,918
Commercial or Industrial:				
Small Light and Power	6,886,336	6,681,303	+ 3.1	29,703
Large Light and Power	457,707	440,862	+ 3.8	1,069
Others	202,991	201,591	+ 0.7	966
Total Ultimate Customers	**58,741,463**	**57,718,915**	**+ 1.8**	**204,656**
ENERGY SALES—During month of January (Kwhr in Thousands)				
Residential	19,429,761	18,114,246	+ 7.3	71,384
Commercial or Industrial:				
Small Light and Power	10,136,854	8,990,320	+12.8	38,358
Large Light and Power	27,386,547	28,217,831	— 2.9	63,790
Street and Highway Lighting	623,155	583,629	+ 6.8	3,375
Other Public Authorities	1,325,321	1,205,653	+ 9.9	740
Railroads and Railways	457,027	464,619	— 1.6	—
Interdepartmental	77,334	38,803	+99.3	623
Total to Ultimate Customers	**59,435,999**	**57,615,101**	**+ 3.2**	**178,270**
Revenue from Ultimate Customers (Thousands)	**$1,010,932**	**$961,822**	**+ 5.1**	**$4,799**
RESIDENTIAL SERVICE				
AVERAGE CUSTOMER DATA—for 12 months ended January 31. (New Series)				
Kilowatt-hours per Customer	3,872	3,635	+ 6.5	
Average Annual Bill	$95.64	$90.88	+ 5.2	
Revenue per Kilowatt-hour	2.47¢	2.50¢	— 1.2	

* By courtesy of the Federal Power Commission.

† To conform with the new FPC "Uniform System of Accounts," the data reported as "Rural" have been assigned to other appropriate classifications.

‡ Revised to reflect estimates for non-reported data not previously included and adjustments to earlier estimates.

EEI BULLETIN

Contents

Vol. 29 • No. 5 *May, 1961*

Articles, Speeches, Reports

EEI Offers New Course for Utility Employees 131
Edison to Be Installed in Hall of Fame June 4 134
Accounting Conference Stresses Depreciation, Leasing vs. Ownership, Automation and EDP, Customer Relations, Improving Performance 135
Communications Media in Customer Relations
R. L. Retterer 138
Can Electronic Data Processing Improve Customer Relations?
Clifford Carte 142
Accountants Can Improve Performance and Increase Profits
S. N. Spring 143
Final Report—Soil Thermal Resistivity Study
L. H. Fink 147
Shareowners' Meeting in-the-Round 150
38 Safety Achievement Awards Are Presented 151
Fort Worth Salutes J. B. Thomas as the Man of the Year .. 153
Carolina P&L Launches Farm Program 155

News, Notes, Miscellany

Conventions and Meetings 130
580,000-Kw Unit to Be Built by Indiana & Michigan 137
Film Available on Electric House Heating 146
'EEI-NEMA Standards for Distribution Transformers' Available 152
Young Men's Utility Meet Trains Future Leaders 156
All-Electric Apartments to Be Built 156
Columbia University's Utility Management Workshop Scheduled July 23–Aug. 4 157
Frye Joins EEI as National Defense Aide 157
People in Power 158

The EDISON ELECTRIC INSTITUTE BULLETIN is published monthly, except bi-monthly in July and August, by the Edison Electric Institute, an association of electric light and power companies in the United States and its territorial possessions. Its affiliate members consist of investor-owned electric utilities in North, Central and South America and contiguous islands in the Western Hemisphere.

The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

Closing date for the BULLETIN is the tenth of the month preceding the month of issue.

Manuscripts and correspondence relating to the BULLETIN should be addressed to the Editor, Edison Electric Institute, 750 Third Ave., New York 17, N. Y.

The Edison Electric Institute does not assume responsibility for, nor necessarily endorse or approve, statements made by contributors to the BULLETIN.

Subscription price of the BULLETIN is $3.00 per year in the United States; $4.00 per year in foreign countries. Second-class postage paid at Englewood, N. J. Publication office, 515 East 41st St., Paterson, N. J. Editorial office, 750 Third Ave., New York 17, N. Y.

CONVENTIONS and MEETINGS

1961

June

4 ECAP Management Group, Hotel Pierre, New York City, N. Y.

4 PIP Steering Committee Meeting, Teakwood Room, Pierre Hotel, New York City, N. Y.

5- 7 EEI Annual Convention, Waldorf-Astoria, New York City, N. Y.

11-13 Wisconsin Utilities Association Accounting Section Conference, Dell View Hotel, Lake Delton, Wis.

11-15 ASME Summer Annual Meeting, Statler Hilton, Los Angeles, Calif.

12-14 Electric Council of New England Commercial Industrial Area Development Workshop, Equinox House, Manchester, Vt.

13-14 National Safety Council Public Utilities Section Executive Committee, Laurentien Hotel, Montreal, Quebec, Canada

15-16 EEI Electric Space Heating and Air Conditioning Committee, EEI Headquarters, New York City, N. Y.

18-23 AIEE Summer General Meeting, Ithaca, N. Y.

22 Sales Personnel and Training Committee, EEI Headquarters, New York City, N. Y.

22-23 EEI Residential Electric Heating and Air Conditioning Committee, Williamsburg Inn, Williamsburg, Va.

25-28 North Central Electric Association, Annual Executive Conference, Lake Okoboji, Iowa

25-30 ASTM Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

26-28 American Society of Heating, Refrigerating and Air Conditioning Engineers Annual Meeting, Denver, Colo.

26-28 CEA Annual Meeting, Banff Springs Hotel, Banff, Alta., Canada

August

23-25 AIEE Pacific General Meeting, Salt Lake City, Utah

September

10-13 Rocky Mountain Electrical League Annual Fall Convention, Jackson Lake Lodge, Moran, Wyo.

11-12 EEI-AGA Accounting Division and Section Organization Meetings, Netherland Hilton Hotel, Cincinnati, Ohio

14 Vermont Electrical Association Fall Outing, Lake Morey Inn, Fairlee, Vt.

14-15 ASME-AIEE Engineering Management Conference, Roosevelt Hotel, New York City, N. Y.

14-16 Public Utilities Association of the Virginias Annual Meeting, White Sulphur Springs, W. Va.

20-21 PIP 1961 Workshop Conference, Brown Palace Hotel, Denver, Colo.

20-22 IIFEUC Eighth Annual National Electric Farm Power Conference, Leamington Hotel, Minneapolis, Minn.

20-22 NELPA 5th Annual Meeting, Sheraton-Portland Hotel, Portland, Ore.

21-22 Missouri Valley Electrical Association Accounting Conference, Sheraton-Jefferson Hotel, St. Louis, Mo.

24-27 ASME-AIEE National Power Conference, Sir Francis Drake Hotel, San Francisco, Calif.

25-26 PEA Accident Prevention Committee, Philadelphia, Pa.

25-27 EEI Meter and Service Committee, Leland Hotel, Springfield, Ill.

27-28 PEA Annual Meeting, Bellevue Stratford Hotel, Philadelphia, Pa.

27-29 Missouri Valley Electrical Association Sales, Rural and Home Service Conference, President Hotel, Kansas City, Mo.

28-29 Southeastern Electric Exchange Accounting Section Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

October

1- 7 Electric Council of New England Management Training Course, Bald Peak Colony Club, Melvin Village, N. H.

2- 3 Electric Council of New England Residential Sales Workshop, Hotel Wentworth-by-The-Sea, Portsmouth, N. H.

2- 3 Iowa Utilities Management Conference, Ft. Des Moines Hotel, Des Moines, Iowa

2- 4 EEI Prime Movers Committee, Continental-Denver Hotel, Denver, Colo.

4- 6 Indiana Electric Association, 52nd Annual Convention, Sheraton Hotel, French Lick, Ind.

12-13 EEI Transmission and Distribution Committee, Ft. Des Moines Hotel, Des Moines, Iowa

15-20 AIEE Fall General Meeting, Detroit, Mich.

15-20 National Safety Congress, Chicago, Ill.

16-18 NELPA Business Development Section Joint Meeting with Rate Research Committee and Public Relations and Advertising Committee, Davenport Hotel, Spokane, Wash.

18-19 Wisconsin Utilities Association Electric, Gas Operating and Sales Sections' Convention, Schroeder Hotel, Milwaukee, Wis.

18-20 Electric Council of New England 5th Annual Conference, Hotel Somerset, Boston, Mass.

23-24 EEI Electrical Systems and Equipment Committee, The Jack-Tar Hotel, San Francisco, Calif.

26-27 PCEA Hawaiian Conference, Princess Kaiulani Hotel, Honolulu, Hawaii

EEI Offers New Course for Utility Employees

'The Electric Utility Industry: a Course in Fundamentals' Gives Industry's Basic Facts

"THE Electric Utility Business: a Course in Fundamentals," a six-part employee information program, is being offered to member companies by the Edison Electric Institute.

The new course is derived from authoritative sources and is applicable to every electric company. The material, which is presented both in terms of the electric industry and of the sponsoring company, has been carefully designed to achieve a high degree of employee interest. In field tests, the course has proved effective with all levels of employees.

"The Electric Utility Business: a Course in Fundamentals" is the third phase in a series of courses being offered by EEI to provide electric company employees with the basic facts about their industry and how it fits into the economic picture of America. The first two phases of the program, "The American Economic System," and "American Freedom," have thus far been successfully presented to over 60,000 electric company employees in all parts of the country.

Research has demonstrated that a great many unfavorable attitudes toward employers and the free enterprise system result from, or are associated with, lack of knowledge of simple economic fundamentals. The EEI program is designed to help correct the most prevalent fallacies on these subjects.

The new EEI course is presented through employee groups of not more than 30 people each. It has been found to be most effective when conducted as a six-month course, with one-hour-a-month classes being held on company time. A series of colored filmstrips, an attractively illustrated, 64-page booklet, a number of demonstrations, and a tested method of leading group discussions are provided as part of the course materials. A Conference Leader's Manual, also included with the materials, gives guidance for conducting each of the meetings.

Course Begins with History of Industry

The course begins with a general view of the history and growth of the electric industry. The chief problems —of money, markets, techniques, and system development—that faced the industry during its formative years are reviewed. The role of the industry in the

Sir James Watt
1736-1819

Alessandro Volta
1745-1827

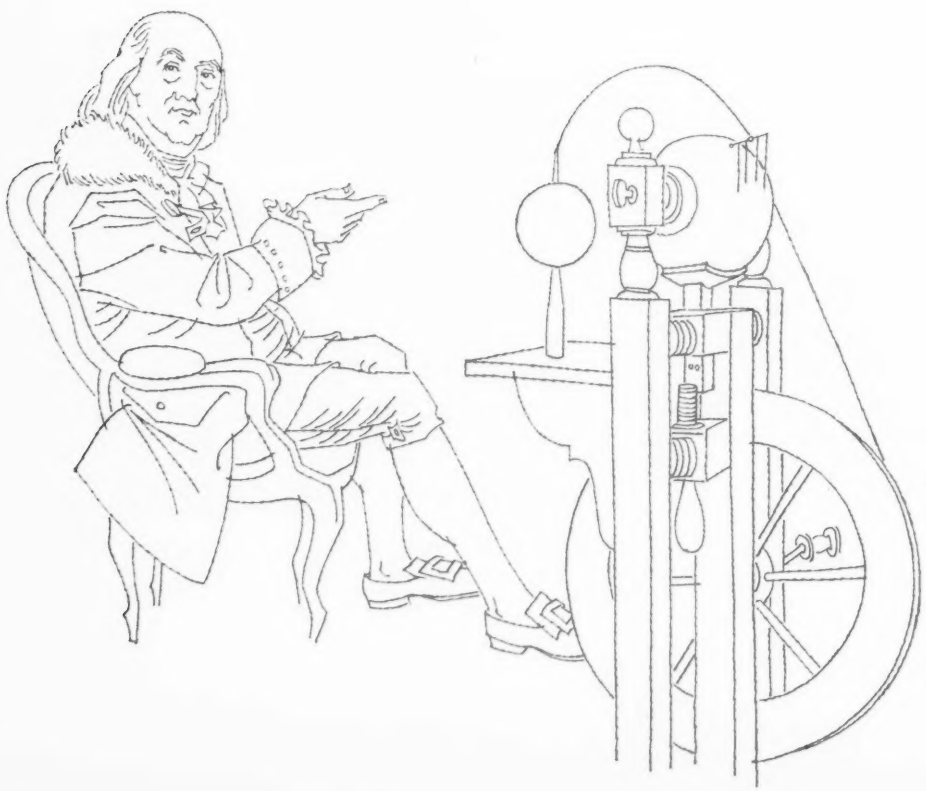
American economy is discussed. The importance of the electric companies as producers of the power that operates much of American industry is shown, as are their roles as employers, and as consumers of fuel, equipment and other products. In this session the basic terms used in the industry are carefully defined.

At the second meeting, the structure of the electric industry is discussed. Customers, employees, shareholders, and the regulatory agencies are all described. Full provision is made for presentation of facts concerning the sponsoring company's own situation. The chief differences between operation of an electric company and of a manufacturing company are discussed, with particular emphasis on the relatively high capital costs of the electric utility business.

Planning for the Future

The way electric companies plan for the future is taken up in the third meeting. The costs involved in electric company operation are reviewed. The relation of load factor to earnings is described. Provision is made for a presentation of the expense trends in the operation of the sponsoring company, and for a discussion of the sponsoring company's income statement and balance sheet.

The fourth meeting deals largely with the aims of an electric company's sales program. The potential areas of growth in electric sales are shown. The importance of relating sales efforts to load factor is thoroughly



Benjamin Franklin
1706-1790

covered, as is the subject of diversity. Provision is made for presentation of the highlights of the sponsoring company's own sales program.

The Art of Making Rates

The fifth meeting deals with rates: the art of making rates and the chief types of rates electric companies have developed. Six basic principles operating in almost all types of rate schedules are presented. These are: that electric rates should be simple, designed so that customers can readily understand them; that rates should be saleable, designed so that the customer can see that they are fair and reasonable and so that he will buy all the electricity he can use; that rates should be competitive, designed to meet the competition posed by other forms of energy or other means of production; that rates should be promotional, designed to encourage customers to use more electricity; that rates should be fair, designed so that all customers using service under similar conditions are billed at substantially the same price; and that rates should cover all costs.

Summary and Outlook

The final meeting of the program sums up the material that has been presented and looks ahead to the future. The question of hydroelectricity and steam is discussed. The electric companies' program in research and development of nuclear power is described, and the plans of the investor-owned electric industry for the future are fully presented.

The first two phases of the EEI employee information program deal with the workings of the American economy and of the development of freedom in this country.

"The American Economic System," the first course in the series, presents the facts demonstrating the effectiveness of the economic system in this country in six one-hour meetings. It provides information on the distribution of national income, size of profits, the relationship between productivity and wages, the relationship between machines and jobs, the importance of tools in increasing productivity, the nature and sources of capital, the actual accomplishments of the American system compared to the rest of the world, and other subjects.

"American Freedom," the second course in the EEI program, presents facts concerning the development of freedom in this country and concerning the forces which threaten freedom today. It is a three-part course with meetings titled: How We Got Freedom, How We Can Lose Freedom, and How We Can Keep Freedom.

Materials for "The Electric Utility Business: a Course in Fundamentals" are available from the Edison Electric Institute, 750 Third Avenue, New York 17, N. Y. The set of six 35mm color filmstrips (EEI Pub. No. 60-45A) is $90; the 64-page illustrated booklets are 60 cents each; the Conference Leader's Manuals (EEI Pub. No. 60-45C) are $2 each; and the demonstration kits, including sample presentations of sponsoring company material, are $6 each.

All illustrations for this article are taken from the employee's booklet of "The Electric Utility Business: a Course in Fundamentals."

Cable being laid in underground system of today.

Edison to Be Installed in Hall of Fame June 4

ON Sunday, June 4, a bronze bust of Thomas Alva Edison will be unveiled in the Hall of Fame for Great Americans at New York University. And thus, the man who resolutely shunned the limelight during his 84 years of life — while providing mankind with probably more material gifts than any other man in history—joins such distinguished Americans as Lincoln, Jefferson, Eli Whitney, John Paul Jones, and Mark Twain, some 30 years after his death.

The principal address will be delivered by Gen. David Sarnoff, Chairman of Radio Corp. of America. Also on hand to honor Edison will be Mary Pickford, who became the idol of the world through one of Edison's inventions—the motion picture camera—and H. S. Firestone, Jr., Chairman of Firestone Tire and Rubber Co. The electric utility industry will be represented by EEI President Sherman R. Knapp; Walker L. Cisler, President of The Detroit Edison Co., and of the Edison Foundation; Thomas W. Martin, Chairman of Alabama Power Co.; and from Italy, Giorgio Valerio, Managing Director of Societa Edison of Milan.

The bust of Edison, carved by Bryant Baker, whose bronze likeness of Gen. "Stonewall" Jackson also is in the Hall of Fame, will be the 86th placed in the shrine. It will be unveiled by three of Edison's children—Charles Edison, former Governor of New Jersey; Theodore Edison, a research scientist, and Mrs. Madeleine Edison Sloane.

Thomas Alva Edison, shown in his laboratory at Menlo Park, N. J., with his "Edison Effect" lamps, on June 4 will join other great Americans in the Hall of Fame of NYU. Colonnade of the Hall of Fame is pictured at top of page.

Some of those who participated in the EEI-AGA National Conference of Electric and Gas Utility Accountants Conference in St. Louis, April 17-19, are shown above. From left, standing, are: Tennyson Guyer, Cooper Tire and Rubber Co.; Marvin Chandler, President, Northern Illinois Gas Co.; Edwin Vennard, EEI Vice President and Managing Director. Seated, from left, are: E. H. Smoker, President, The United Gas Improvement Co. and First Vice President, AGA; W. T. Hamilton, The Cleveland Electric Illuminating Co., and Chairman, EEI Accounting Division; the Rt. Rev. G. L. Cadigan, Bishop, Episcopalian Diocese of Missouri; R. H. Johnson, The Brooklyn Union Gas Co., and Chairman, AGA Accounting Section. The theme was "Performance and Profits."

Accounting Conference Stresses—

- *Depreciation*
- *Leasing vs. Ownership*
- *Automation and EDP*
- *Customer Relations*
- *Improving Performance*

"PERFORMANCE AND PROFITS" was the theme of the National Conference of Electric and Gas Utility Accountants, held in St. Louis, April 17-19, under the joint sponsorship of the EEI Accounting Division and the American Gas Association Accounting Section.

Depreciation, leasing vs. ownership, automation and electronic data processing, customer relations, and techniques to improve performance and decrease cost were among the subjects discussed at the meetings. W. T. Hamilton, The Cleveland Electric Illuminating Co., Chairman of the EEI Accounting Division, and R. H. Johnson, The Brooklyn Union Gas Co., Chairman of the AGA Accounting Section, presided.

At the General Session, on April 17, Marvin Chandler, President, Northern Illinois Gas Co., discussed the relation of profits and performance. "Profits flow from performance," he said. "It is less obvious, but equally true, that performance comes from profits. Each one will produce the other, and without both no enterprise can long succeed, can long progress."

"The customary concept of profit is that of a residue —what's left over, if anything, after selling the product of service and paying all expenses. Profit is more

than the residue; it is a catalyst or energizer that starts the whole cycle going. The performance characteristics that produce profits are: low cost of capital, a sound capital structure, plant built in anticipation of need, installation of technological improvements, conservative accounting, good wages, good working conditions, an adequate staff of well-informed employees, long-range planning, safe operation, a solid program to build sales, good service to customers, and community service through area development, and lower prices."

Tennyson Guyer, Director of Public Relations, Cooper Tire and Rubber Co., noted that "the significant thing about these times is the erroneous philosophy that you can retire before going to work. All too many are trying to make unemployment benefits last until social security begins."

"Here is the richest country on earth," Dr. Guyer said, "with more cars stolen each year than Russia owns altogether; with more automobiles than homes, wealth undreamed, and inventories unsurpassed—yet her people worry about two things: where to park and how to reduce. If this country and its economy is to stay virile and survive, our people must return to an old-fashioned philosophy of the capacity for appreciation, coupled with a mind to work, and the faith to overcome mountains."

At a meeting of the Depreciation Accounting Committee, J. J. Reilly, Ebasco Services Inc., reported on a study made of the mortality experience of larger size boilers and turbogenerators in central station use, as reported by 46 participating companies. Based on the data analyzed, boilers have an average life of 45 years and turbogenerators an average life of 50 years, Mr. Reilly said.

Divergent points of view relating to depreciation based on technical obsolescence were expressed at the meetings of the Depreciation Accounting Committee. In an address presented April 17, Maurice Scharff, Consulting Engineer, stated that any proposal to shorten average service lives and increase annual depreciation rates because of possible future effects of causes not now "known to be in current operation," would be "bad accounting, bad economics, and bad policy" under the prevailing system of rate regulation. The effect of technical obsolescence, as a cause of depreciation, he said, "may or may not result in lower income tax payments, which would be wholly an advantage to the rate-payer; it may or may not result in larger depreciation expenses for rate purposes, offsetting the reduction in income tax; but it may well result in a greater theoretical depreciation reserve, and a reduction in both rate base and return, wholly to the disadvantage of the stockholder."

O. E. Smith, Baltimore Gas and Electric Co., presented an opposing view. "The rates of depreciation presently used by electric and gas utilities are inadequate to recoup the investment in property over its life," he said. "Present depreciation rates are based largely on hindsight, and the resulting estimated life expectancy of property gives little recognition to the fast-moving technological and other developments that are tending to speed the retirement of property because of obsolescence or inadequacy."

"Probably the biggest deterrent to the use of foresight in setting adequate depreciation rates for our business," Mr. Smith said, "is the belief, not only among ourselves but also among regulatory and tax agencies, that the products we serve are absolute necessities of modern living, insuring a glorious future of growth without foreseeable end. I share the view that our future is bright, but I believe it will be even brighter if recognition is given to recoupment of our investment while our star shines. History shows how fickle the consumer can be when someone builds a better mousetrap." Mr. Smith pointed to a number of trends and developments now at work that could be substantial factors in reducing the useful life of electric and gas facilities. Among these were:

- The tremendous growth in demand for service, which forces the early retirement of low capacity equipment because of inadequacy.
- Development of large, interconnected systems that makes bigger, more efficient units feasible, and hastens the retirement or limits the use of smaller, less efficient units.
- Exploding population in suburban development areas, which is bringing demands to replace overhead lines with underground facilities.
- Further development of unconventional methods of power production, such as MHD and the fuel cell.
- Further development of coal pipelines that would make present coal hauling equipment obsolete.

In a meeting of the General Accounting Committee, P. W. Briggs, Rochester Gas and Electric Corp., discussed the advantages of leasing equipment and property. The chief advantages, he said, are:

- Capital can be freed and used for profitable investment.
- In some situations, leasing could allow a company to use modern equipment, which it could not otherwise afford.
- If equipment is needed for a specific purpose or for a limited period of time, leasing may be the solution.
- Leasing is highly advantageous where expert servicing is required.

Regulatory commissions in a number of states have indicated from time to time that automobile fleet leasing programs may be in the best interest of the company and the public, Mr. Briggs said. Advocates claim that under certain conditions auto fleet leasing can produce increased earnings. "When considering that there could also be a tax advantage in some instances," Mr. Briggs said, "this would seem to evidence that a careful comparison of auto fleet leasing with ownership should be made by individual companies."

W. H. Zimmer, Jr., The Cincinnati Gas & Electric Co., spoke in favor of ownership over leasing of equip-

At the EEI-AGA National Conference of Electric and Gas Utility Accountants Conference, which was held in St. Louis, Mo., April 17-19, the General Accounting Session is shown at its meeting April 18, in the Khorassan Room of The Chase Park Plaza Hotel.

ment and property. "Regardless of whether an asset is owned or leased, the consumer will pay the same amount," he said. "In either case, ownership or lease, there is no benefit to the consumer since the rates he pays will include all the same costs in whatever form they may be."

Mr. Zimmer pointed out that, as a form of debt, leasing has a distinct disadvantage: the leased property cannot be included in the rate base. "Therefore," he said, "although the common stockholder is saddled with the risk of another fixed, prior charge, there is no compensating return."

A report presented to the General Accounting Committee by W. R. Hutchison, The Dayton Power and Light Co., indicated that since 1959 the number of utility companies using medium and large-scale computers has more than doubled. According to a recent survey made by the committee, at least 28 companies are making use of these computers in approximately 150 applications.

580,000-Kw Unit to Be Built by Indiana & Michigan

CONSTRUCTION will start this summer on a 580,000-kilowatt steam-electric generating unit on the Indiana & Michigan Electric Co. system at Lawrenceburg, Ind., the company has announced.

This announcement was made at a recent joint press conference conducted by Governor M. E. Welsh of Indiana, and R. E. Doyle, Jr., Vice President and General Manager of Indiana & Michigan Electric, a major operating company of the American Electric Power system.

Mr. Doyle said this would be the largest and most efficient steam-electric generating unit ever built by an investor-owned utility company.

The Governor termed the announcement "a tremendous boost for the economy of southeastern Indiana," and congratulated I&M for the company's "faith in the future growth and prosperity of the Hoosier state."

The 580,000-kw, $73-million unit will be the fourth at I&M's Tanners Creek plant at Lawrenceburg. It is expected to be completed early in 1964.

The new facility will be designed to operate at an anticipated heat rate of about 8,500 British thermal units per kilowatt-hour of net generation—a new record in the efficiency of the conversion of the energy of coal into electrical energy. The unit is expected to burn about 1,600,000 tons of coal annually, all of which will be delivered via river barge.

The investor-owned utility industry's largest units operating today are two generating machines with individual capabilities of 500,000 kw. Both are on the seven-state AEP system, both are world leaders in generating efficiency, and one of them is an I&M unit. This is the single unit at the new Breed plant on the Wabash River near Sullivan, Ind., dedicated last October.

Communications Media in Customer Relations

By R. L. Retterer

Customer Service Director,
Columbus and Southern Ohio Electric Co.

WHEN Plato defined the limits of the size of a city as the number of people who could hear the voice of a single orator, he was illustrating the limits that communications place upon a community. Those limits have lately expanded to the moon. We are in the midst of a communications explosion. Consider: the Battle of New Orleans was fought because its participants hadn't heard that the War of 1812 was over. Today we are the television eyewitnesses of UN proceedings, the World Series, and street fighting in the Congo. Facts travel far faster than the human capacities to absorb them.

This communications explosion is caused by an era of mechanization. Personal contact is becoming less and less practical as a means of communication. Other media must be used to keep our customers informed. For this reason we must be sure that we are deriving the most value from the communications media. If we are not, our customers may form biased opinions due to lack of complete information.

Because of the population growth during the past decade, most of us have had to modernize our accounting operations. We have also found it necessary to develop new and better means of communication, some of which have been successful and some which have not.

Let us now try to evaluate the situation and see if we can set a course for the future.

Among the first points that must be considered are, "What does the customer want to know?" and "What do we want the customer to know?" These two questions were discussed in a paper presented at last year's conference by D. T. Faust of the West Penn Power Co.

Mr. Faust, in his paper, pointed out that the two most important items to customers were service and the cost of that service, and that all communications between the company and the customer should be governed by these two factors.

In conducting our survey, we found that what the customers want to know still did not appear to be as important to our companies as what we wanted to tell them.

A Matter of Importance

We seem to place the greatest importance on what we want the customer to know. Possibly this factor has a bearing on our next point which is, "How do we evaluate our communications?" Most companies have stated that they felt their programs were effective because of the lack of negative results, such as complaints or disgruntled remarks. A very few stated that they had conducted personal surveys which showed their methods were effective.

Seemingly, if we receive no negative response, then we can assume that everything we do is being well received. But as intelligent individuals, I am sure we will agree this is not necessarily so, for in our society only a small majority register dissatisfaction with any given statement or item. Possibly we should look back over what has been done in the past, not as the creator, but as the receiver (the customer), and see just what we are really interested in. Would it be presumptuous of me to suggest that possibly 50 percent of these items

An address before the National Conference of Electric and Gas Utility Accountants, St. Louis, Mo., April 17, 1961.

would have been thrown out before they were released if we took the customer's view?

The following paragraph from one of the letters received exemplifies this point:

> "The public, generally, is far more concerned with the kind of service they receive, at rates they feel are reasonable, than they are with ballyhoo and chest-thumping on the part of public service companies about these things. A change in the accounting system, the construction of new buildings or plants, increasing the heat content of the gas supply, etc., may very well be of great significance to the company, but they are only deluding themselves when they think that customers view such things in the same light. The company making a change in its accounting system may, in fact, be courting disaster in exhorting the change because it focuses attention on items which might otherwise go unnoticed. Customers are interested in the amount of the bill far more than they are in how it is prepared. The fact that the bill is for an amount they expect is more important to them than the fact that it is the product of a super-duper electronic accounting system . . ."

In preparing this paper, the EEI-AGA Accounting Customer Relations Committee sampled utility companies throughout the country in an effort to gather information.

Generally we were interested in finding the value individual companies derived from the use of promotional or communication techniques in dealing with their customers. To arrive at these values, it was necessary first to find out what methods of communications the companies were using, how effective they were, and under what conditions they were used. An attempt was also made to find out why one medium was used in preference to another.

Conclusions Drawn

After determining these factors, we were able to draw conclusions as to the effectiveness and extent of the use of communications in customer relations.

It would be impossible to cite all the answers of the companies that responded to our letter, so the information was compiled into three categories:

- Advertising—all forms of communications which the company has paid for.
- Publicity—all forms of communications which have been free to the company.
- Company-organized programs—programs in which company personnel are actively engaged.

The committee then asked the companies sampled the following nine questions:

- Under what conditions have you used direct mail, display, newspaper, radio, or television advertising to inform customers of certain situations?
- How often is such advertising used? One time only? Periodically during: a day, a week, a month, a particular season?
- Do you believe such advertising is effective? Why?
- Under what conditions have you used newspaper, radio, or television publicity to inform customers of certain situations?
- In your opinion, has this publicity been conducive to good customer relations? Why?
- Do you prefer one form of publicity over another? If so, in what instances?
- Under what conditions have you used one or another of these company-organized programs to inform customers of certain situations: home service demonstrations, home service calls, plant tours, speakers bureau, customer office transactions, customer telephone transactions, consulting services, surveys (in person, by mail, company conducted, professionally conducted)?
- Was the use made of company-organized programs effective? Why?
- In your opinion, which medium is most effective in getting our message to our customers? Please explain.

Newspaper Ads Most Popular

Most companies replying to the questionnaire indicated that they had used all forms of advertising, with newspaper ads being the most popular method to promulgate information in dealing with specific situations. The results of the survey showed that specific situations were indicated in the following order of importance:

- To announce or promulgate favorable information about changes in rates.
- To announce or promulgate information about high usage of electricity or gas, such as during extremely cold weather.
- To announce or promulgate favorable information about building changes, location of company's office, etc.
- To inform customers about interruption of service—prior to or immediately following.
- To promote public service program or use of building facilities.
- To publicize company and company personnel.

The most prevalent examples of advertising cited were cases dealing with rates and rate changes. There were extensive campaigns to inform the customer about benefits of an increase in rates, why their bills would be higher, and what benefits would result from these higher bills. This seems to be the primary extent of most utilities' efforts to provide the customer with information about the cost of his product. The similarity in methods seems to indicate a set pattern that has been successfully used by all utilities, regardless of location, climate, or economic area.

Probably the second most commonly mentioned example of advertising was mail-outs or direct mail. In these, many methods were tried, such as direct mail twice a year, or at the beginning of an extremely cold or hot season.

Radio and television were used by companies in large metropolitan areas. The cost of such programs and their effectiveness, except in cases of emergency, were questioned. (In cases of emergency, radio was the most used method of communication, by far, and seemingly was effective when used on a bulletin-type system.)

The return to mailing bills in envelopes rather than

the post card system was favored by several firms (See March, 1961, EEI BULLETIN, pp. 75-79.) Companies reported the use of such a method was an effective way of getting information into a customer's hands, by means of an insert, at a time when it would be most likely to be read. These inserts covered various subjects: services rendered, new installations for better service, etc. Two replies pointed out that the telephone company had had phenomenal success with its monthly insert entitled, "Hello!" This, it is felt, helps to eliminate questions about high bills without the necessity of a company being put in a defensive position.

Frequency of using advertising or promotional material seems to be established by individual taste, based on the needs of the company to make itself look favorable in the customer's eye. Newspapers were generally used weekly, and in all cases at a minimum of once a month. Radio and television were primarily delegated to advertising at special times, such as at the beginning of heating or cooling seasons. Commercial advertising spaces were pre-empted for public service announcements when necessary. Mailing was done on a monthly basis, simultaneous with billing.

It appeared, from letters received, that the gas-related companies used all methods of advertising much more heavily than the electric industry.

After reading all the replies dealing with paid advertising as a means of communication, two points stand out in the committee's mind:

- That all companies use advertising whenever they want to insure that their message is put into the hands of their customers.
- That advertising, due to its cost, has limited use where a direct dollar benefit cannot be fixed.

Most companies participating in this survey pointed out that publicity was the best means the company could use to tell its story to the general public.

There were three basic classifications of this belief:

- Any publicity, as long as it mentions the company, is good for the company.
- Publicity that deals with better service and more efficient means of conveying service should be the only subjects covered.
- The least publicity possible is the best policy.

Merit in All Viewpoints

All of these viewpoints have their individual merit.

Publicity is an area that should be controlled by top-level company policy for, although publicity about a company and knowledge of the company may be of interest to people in general, it does not always show up as a helpful aid in dealing with irate customers.

One area of publicity that can be helpful in dealing with customers is promotional information about company personnel and company participation in community activities. Community activities are of general interest to everyone, and a utility can create many favorable impressions with a minimum amount of work if it will encourage individual members of its company on all levels to participate in these activities.

Newspaper publicity was preferred by most companies because of its extensive coverage and the length of articles that could be used. It was also pointed out that newspapers can use photographs which can attract more attention than any other means of communication.

The radio and television media received the same releases as newspapers in most cases, but due to time limitations cut their length extensively when they were used. Cost of these two media prohibit them from using extensive company-sponsored publicity unless it is of a genuine news value, such as expansion programs and increase or decrease in rates. One company pointed out that it feels customers do appreciate information frankly and briefly, but not of the "dramatic" type. Other media mentioned were direct mail, booklets, and handouts at displays, all of which seem to be effective in their individual use.

The Best for the Occasion

The major criterion used for selecting a medium to be used for publicity is to use the one that best suits the situation. Most companies have information sections which disseminate publicity on a regular schedule to all media. This dissemination of information is effective from a publicity standpoint, but little coordination was shown with the customer relations departments. Thus, there does not seem to be a true measure of effectiveness in dealing with customer relations problems shown as a result of this survey.

Company-organized programs are conducted in every company surveyed, and reportedly are effective in their individual area. Home service demonstrations and calls were used to demonstrate the use of ranges and other equipment, and to help promote the sale of equipment. This does not have a direct customer relations benefit, but is helpful in an indirect way, as part of an over-all program.

Plant tours, speakers' bureaus, and other public relations activities are used extensively to create good will throughout the area serviced. An all-out effort is made by companies to tell "the private enterprise" story in an effort to eliminate the ever-present idea that utilities are a government function and therefore are not entitled to profit.

A few companies used surveys and canvasses to determine customer reactions to the company, effectiveness of disseminated information, trends, and patterns of development within their area.

These surveys, it was pointed out, are both costly and time-consuming. For this reason, the majority of the companies did not use either surveys or canvasses, except when desiring specific information, such as in rate cases.

All company-organized programs are specifically tailored to the individual company's particular situation and thus can be said to be effective whenever used. The nature of such programs permits them to be changed to eliminate any derogatory effects.

In summarizing, we must first accept as fact the statement, "There is value from using communications media in dealing with customers." If we accept this

fact, then we can proceed to determining the extent of this value, and suggest some possible ways of increasing it.

All of the companies which were surveyed, and I am sure most other companies, use advertising, publicity, and company-organized programs to a varying degree in their own organization. The majority of these programs seem to be coordinated or supervised by either advertising, publicity, or public relations sections.

The value of these programs is primarily measured in most companies by their desire to promote themselves.

There seems to be a lack of coordination between customer service sections and those areas which are dealing with the communications media, sometimes giving rise to awkward situations. This, then, indicates that the first point we should recommend is that a better system of coordination between the customer service sections and the section dealing with the communications media be set up in each company. This is not recommended to be a control, but to be an aid in measuring the value of promotion to the customers.

Secondly, the measurement of effectiveness of communications media should be undertaken in an organized factual manner. This is possibly something that a committee from this organization could work on and recommend ways of measuring effectiveness to member companies.

90 Percent Answered 'I Believe'

The fact that over 90 percent of the companies replying to the survey answered with the prefixes, "I believe," "We feel," "Possibly," etc., and the statements made in their reports, show that they had no actual means of measuring the effectiveness of the programs undertaken. One interesting answer received from a company stated that it felt its program for telling customers about irritating outages was effective, although it had never been able to put it into operation.

Thirdly, it appears that most companies feel that advertising should be used primarily as a means of conveying vital information to the public in situations where the company stands to benefit monetarily. Publicity, on the other hand, is generally looked at as a medium to be used as much as possible, and in most utilities it seems to be increasing in prominence. Company-sponsored activities have been generally developed over a period of years, and have become an accepted routine of the company.

In many people's mind, probably the most important point is the value of personal contact in communications. Personal contact with customers in our offices has decreased steadily over the years. We see very few of our customers, and unless they have difficulties with their utilities, they see very little of us. Thus, the image of the company as a person or individual in the community is lost. If we are to be successful in maintaining the friendly feeling that investor-owned utilities have had with their customers throughout the years, we will have to put forth a concentrated effort to insure that all personal contacts are *good* contacts. For this reason an employee training or employee education program is recommended.

In the majority of the companies, top management has not yet been made aware of the fact that their expansion has brought in new employees who have not grown up with the industry, as in the old days, and therefore, *have not had* a chance and *do not have* a chance to learn firsthand about their utility and its operations.

This quote from one of our companies exemplifies this position:

> "We feel that personal contact is important, too. But, in all cases—be it a tour of our facilities by customers, home calls or demonstrations by our home service department, or appearances by members of our speakers bureau—we are trying to cope with a specific situation or problem. Rather, we are attempting to create or maintain a long-range image of our company as a good, helpful community citizen with an interest in the customers it serves.
>
> "In our opinion, a well-informed employee group can be our most valuable asset in telling our story to our customers. Their contacts with friends, neighbors, social and business groups give the customer an opportunity to ask and have his questions answered regarding matters in which he may have an interest."

Communications does have a definite value in customer relations, but this value is only as good as the concentrated effort that is put forth to measure its effectiveness and constantly to revise company programs.

Above all, it should be remembered that there is no substitute for personal contact in communicating with customers.

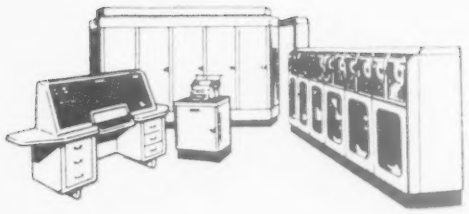
H. B. Munsell

H. B. Munsell, Chairman of the Kansas City Power and Light Co., died April 16 at his winter home in Chandler, Ariz. He was 55 years old.

Mr. Munsell, who joined the utility company as vice president and secretary in 1947, was named president two years later. He previously had worked for the United Light and Power Co. of Chicago.

A native of Ottumwa, Iowa, Mr. Munsell graduated from the University of Iowa's School of Law in 1923.

After he became principal officer, Mr. Munsell witnessed the addition of more than $263 million to the utility's plant. Operating revenues increased from $24 million in 1946 to $64 million in 1959. The company's capacity was boosted beyond the million kilowatt mark for the first time in 1960. This was more than three times the capacity available in 1941.



Can Electronic Data Processing Improve Customer Relations?

By Clifford Carte

Assistant Manager, Data Processing, The Cincinnati Gas & Electric Co.

I BELIEVE a large-scale computer can greatly improve customer relations if used properly. I say "if used properly" because I think we people responsible for programming and planning for a large-scale computer often lose sight of what we are doing to customer relations in many areas.

We now have at our disposal a wealth of information about our customers that we can print at very high speed, so we have a tendency to think our dreams have come true and we can do all the things we have long dreamed of doing. For instance, we can print, at a very low cost, information on our customer's bill that we have never been able to print before. So we go all out and really get fancy with the bill. Not only do we print Use, Number of Days, and Amount, but we add a lot of information that may be of interest to us, but may or may not be of any interest to the customers. In addition to the information needed to identify the cash, we hang on such items as demand, fuel and escalator rates, credit information, date read, next read date, area, year, codes and on and on until that little bill is packed with information. Oh yes, if there is any space left, we finish packing it with advertising.

Now, we send the bill to the customer, who tries to find the amount to be paid for our service. He writes us a check for the account number and the fun really begins.

An address before the National Conference of Electric and Gas Utility Accountants, St. Louis, Mo., April 17, 1961.

On the other hand, we may go to the other extreme and supply our information stations with too little information, or information arranged in such a way to make it difficult, or sometimes impossible, to answer customer inquiries while the customer is still on the phone.

I remember well at our own company, before we installed a continuous customer's history record, that it was difficult to answer a question about total bill amount because the amounts from each item billed had to be added by the station clerk. Very often this resulted in confusion and irritation to the customer.

There are many reasons why a computer should improve customer relations, some of which follow:

• Speed — Speed of computation made possible by the substitution of electronic tubes and circuits for the electro-mechanical action of counter wheels and relays is the advantage most often thought of in connection with modern computers. We now have a tool at our command that can do thousands of calculations in a second, permitting us to do a job in hours that heretofore may have taken us weeks. The great speed of modern-day computers should be a big asset in improving customer relations in our business, especially in the area of keeping the customer file up-to-date with transactions. All of us know how important it is to work an order soon after it is executed. Frequently the system may be set up to work the orders within a few hours after they are received. A quick print-out of the record, reflecting the changes, arms the stations with the most current information. Not only do current records improve customer relations, but improve internal operations as well. For instance, very few things could embarrass the manager of the credit and collections department more than disconnecting a customer's service for non-payment after the bill had been paid. Everyone is aware of the importance of speed in working orders and applying cash, and the high speed of an electronic computer should really "pay off" in this area.

• Accuracy—Equally important to speed of processing is the accuracy of data processing made feasible through careful electronic circuitry design and certain error detector features which can be built into the system. Because of the extensive self-checking in most of the computers of today, extending all the way to duplication of arithmetical and logical circuits, we do not have to rely on test runs or the programmer's skill in coding program checks. In addition, from a maintenance standpoint, higher operating efficiency is obtained since isolation of a faulty circuit is made easier because the computer stops at the instant a fault is detected. I believe all will agree that the computers of today are more accurate than any of the equipment used in the past. This is very important to customer relations because one incorrect bill causes customer complaints and mistrust for a long period of time. Also, the mistrust may spread like wildfire through the neighborhood when the customer tells his neighbors how the utility company tried to cheat him. This may

(Continued on page 152)

Accountants Can Improve Performance and Increase Profits

By S. N. Spring

General Accounting Supervisor, Consumers Power Co.

ACCOUNTING has been defined as the art of collecting, analyzing, and interpreting financial data to meet the informational requirements of the various interests concerned with the operation of an enterprise.

Too many people believe that accountants are only concerned with past history. It is true that the accountant *is* concerned with past history. However, he must be able to explain not only what did happen, but also why it happened and, most important, what is likely to happen under certain conditions in the future. In short, he must be able to interpret the meaning of the historical data which he has accumulated, and also meaningfully project this data into the future. It is his ability to so utilize these figures that makes the accountant earn his keep.

It should always be kept in mind that accounting is never an end in itself. It is a vital service function, a means of obtaining information which will materially abet the making of sound decisions and the formulation of intelligent policies.

Let us assume that we keep an accurate set of books, pay our bills promptly and correctly, pay our employees the proper amount of salary or wages, account for material charges, prepare and issue financial statements, and perform the other variety of functions a typical general accounting department is responsible for. Does that mean we can sit back and say we are doing all that is expected of us? We can, if we want to, and many do, but remember that accounting is never an end in itself, but a vital service function. Ask yourself, is your accounting department doing the best job possible in providing service to management and other departments of the company? Is it doing the job efficiently? If you can truthfully answer yes to those questions, then there is no need for you to waste any more of your time reading this paper.

For those of us who believe that we are not doing a full job, and would like to do something about it, let us explore the possibilities. None of these possibilities are new. In fact, most of them have been practiced by some companies for many years, but have you ever tried them?

Some of the ideas presented require a "selling" job both to management and to those directly involved in any new idea or change. The importance of having people sold cannot be overemphasized.

Sponsors of Red Tape?

The accountant and the accounting department are often tagged as sponsors of red tape and voluminous reports. We issue a stream of financial statements and reports each month. They look beautiful, but have you examined them critically lately? Have you changed the format in recent years? Do the people receiving these reports really need them, or is it just a habit? What does it cost to prepare the reports? Is the issuance of the reports timely? There is nothing quite so stale as a report issued too late to be of effective use.

In order to review periodically the number and type of reports issued, many companies issue questionnaires from time to time to those receiving them, asking whether they need them, and what changes they would recommend. Sometimes the cost of preparing the report is given, which often influences the decision as to whether the report is necessary.

Form design and distribution should be considered periodically, and also whether we are preparing reports that could be eliminated, consolidated, abbreviated or prepared quarterly rather than monthly.

Significant savings can be realized through report control. All too frequently a report once requested by management becomes a monthly report from that time on. Frequently reports are immediately discontinued when the person requesting such report is shown the cost incurred in its preparation. It must be emphasized, however, that any program instituted for the

An address before the National Conference of Electric and Gas Utility Accountants, St. Louis, Mo., April 17, 1961.

control of reports must be continually policed and strictly enforced. In short, those assigned the responsibility must have the necessary authority to control effectively the issuance of reports.

In the past few years management has become increasingly aware of the necessity of decreasing controllable costs to offset the ever-increasing costs of fuel, labor, material, etc., over which it has less control. In order to stay competitive and to serve our customers at the lowest price possible, we must reduce those costs over which we have some measure of control, and accountants should lead the way.

Accountants Can Lead the Way

Accountants can lead the way by application in their own department. It is better to put your own house in order before being critical of other areas. In order to obtain the greatest measure of success in such a program there are a few fundamental rules which have to be followed:

- Management must endorse such a review of operations and give it its wholehearted support.
- Employees must be informed fully as to the objective of the program. They must be assured that all reductions in the work force will be accomplished by attrition, that no employee will lose his job by such a program. It may also be possible to tell them that many jobs will be upgraded because of increased responsibility. Whatever promises you give the employees, and we cannot stress this too strongly, be sure that you carry them out. When the employees sense you are sincere and you demonstrate your sincerity, you will be gratified at the cooperation and suggestions you will receive from them.

Now that the proper climate has been created the real work begins, and it is work, but it is work of such a challenging nature that it will stimulate both you and your fellow employees.

Reviewing your operations is simply what it implies. Many utilities have been following the same departmental procedures for years. This is the easy way to operate. What was good enough years ago is good enough today seems to be the philosophy. The head of each department should review every operation in his department and ask himself why is it necessary, or can it be done a better way? We think the best approach is to have meetings with the people who are performing the operation. By so doing it gives the employee a chance to express his own ideas and create a feeling that he belongs on the team. If any ideas presented by an employee are rejected, he should be told why. If his ideas are accepted, be sure that he is given credit.

Such a program as reviewing your operations is not accomplished overnight, nor is it a one-shot deal. Such a program should be carried on constantly to be sure that you are attaining maximum efficiency. You will find that it becomes easier because of the cooperation of the employees, providing, of course, that you have kept faith with them.

The routine by which an accountant gathers data will, over a long period, develop into a clerical jungle if it is not periodically analyzed. Analysis is necessary because of the following events:

- Company growth, particularly the absorption of other companies and separation or consolidation of divisions, causes many problems which, if not controlled by the accountant, will eventually be controlled by everybody else, with a consequent uncertain mixture of procedures within the company.
- Requirements of regulatory agencies create much work, but when the regulations change, so should the work. This does not always happen. To this day companies are discovering work which originated with the demands of wartime agencies.
- Employee turnover is a prime cause of mushrooming work. Each employee tends to develop his own system of controls and sub-controls with which to perform his particular function. But when the employee leaves, his personalized system is automatically adopted by his successor as a necessary part of the job, and this employee further develops the system. The process will follow Parkinson's law (work expands to fill the time available) unless the accountant maintains close supervision of the clerical functions in his department.

In reviewing the operations of his department, the accountant should consider the following areas for improvement:

- Eliminate manual labor on repetitive operations through extensive use of machines and preprinted forms. Proper use of source documents and machine tapes can eliminate much copywork. When data is copied from one piece of paper to another, labor is often wasted, and the chance for error increases. Typing or photo-copying of routine media can be expensive.
- Proper routing of reports and other paperwork can reduce or eliminate the number of copies. Some reports need not be typed because pencil reports are often acceptable.
- Some accounting departments have an excess of initialling, name-signing and countersigning. This may seem like a minor item, but an accountant can easily spend 10 percent of his time on this. Actually, very few documents require manual signatures; countersigning is rarely necessary. Rubber stamps and mechanical aids are useful, but when rubber stamps grow on trees, their usefulness should be questioned.
- Checking of source documents can easily get out of hand. In large companies, identical checks are often made by several departments. It should be necessary to check data only once, or in certain cases, not at all. Some companies, for example, have discontinued checking vendor invoices under $100 (except on test basis) because analyses proved that the cost of checking was much greater than the value of errors discovered. Perhaps *all* clerical work of a "checking" nature should be similarly analyzed, i.e., cost of checking vs. value received.

• A definite necessity should be established for all records. Records which are kept merely to check other records are generally useless. The same is true for records which "might be needed some day," for records which are designed mainly to prevent an unusual mistake "which happened once," and for records which are designed only to prove the diligence or accomplishments of an individual.

Perhaps after the initial review of your operations, you should consider adoption of a clerical work measurement program. Such work measurement programs are becoming more and more recognized as the best means for determining what clerical productivity may be expected as a fair day's work. It has been stated that the average office worker operates at only 40 to 60 percent of capacity. We advocate putting your house in order first by cleaning up obsolete procedures, streamlining your operations, and then considering a work measurement program.

Such a clerical work measurement program serves many purposes, such as:

• Measures clerical productivity for a fair day's work.

• Discloses overstaffing.

• Serves as a formal procedure for constantly reviewing accounting methods.

• Assists in a system for employee upgrading and salary adjustments in the clerical field, based on productivity.

Responsibility Well Defined

The responsibility of the accountant to management is generally well defined in most companies. His relation with other departments is not always clear. Accounting procedures originate in all departments of a company, yet the non-accounting departments are often permitted to set up their own systems of bookkeeping. In a large organization, many analogous but independent systems may be in operation. It is necessary to centralize control of data from its source to prevent the unnecessary pyramiding of accounting controls.

The accountant's control of data sources and the destination of reports are often impeded by departmental barriers. Internal financial audits, which cross departmental lines, are more concerned with the validity of data than its necessity; these audits cannot be relied upon as a measure of clerical efficiency.

It has proved profitable for many companies to engage several employees, usually auditors or systems men, on operational surveys which consist of job studies and detailed analyses of work performed by employees in all departments of the company. These surveys are highly effective in weeding out duplicate and other unnecessary work. The principal reason for their success is the announced support of top management, which gives the auditor or systems man complete freedom of circulation, permitting him to analyze procedures from beginning to end, no matter which departments or employees are involved. The surveys are most valuable in the following ways:

• Placement of Work—It is often discovered that a department is overburdened with work, or is having some particular difficulty in handling it. One reason may be that part of the work is more properly the function of another department and can be more efficiently performed in the other department. But probably the biggest waste in many companies is work which is done by the wrong employee. Clerical work, when performed by engineers, superintendents, etc., is costly. Paperwork, which is handled by nonclerical employees, will generally carry a higher price tag and should be kept to a minimum. Unless the employees complain, this type of inefficiency will never be discovered without a survey.

• Integration of Work—The flow of work, from its inception to the final accounting, is subject to many controls. But controls are rigid and do not change with the company. Procedures which were set up 30 or 40 years ago are now redundant in many companies. Individual employees often recognize this, but lack the perspective and authority to make changes which affect other departments. Thus, it is desirable that an independent authority periodically analyze *all* work (not just clerical work) so that the departments will understand what is required of them. It can happen, for example, that the physical handling of materials will involve unnecessary labor costs because of supposed "requirements" of the accounting system.

• Simplification of Work—The greatest potential savings, and the most elusive in large organizations, is the simplification of existing methods and procedures, most of which have been developing haphazardly for many years. The suggestions previously made for the accounting department can apply to all departments. "Operating" personnel tend to regard paperwork as a necessary evil and seldom have the time or inclination to make improvements of their own accord. Simplification of methods in non-accounting departments, therefore, can be spectacular; outmoded procedures never die natural deaths; they must be killed. Most departments welcome an objective review of their work methods and, after a successful survey, they begin requesting it.

• Explanation of Work—Probably the greatest by-product of an operational survey is the orientation of employees. The most common remarks made by employees, when asked to give a reason for their work, are, "It's always been done that way," and "That's the way I was told to do it." The employee making the survey, when interviewing the employees and analyzing their work, must establish more definite reasons than these. The real explanations are passed on to the employees, who are always elated to know that they are doing something useful. Not only is morale improved, but their efficiency increases as they are given a broader outlook toward their work.

• General—The preceding has dealt principally with reduction of expenses through work analysis. It might appear that the only accomplishment of this analysis is

the streamlining of methods and procedures. Other benefits will also accrue:

1. Improved employee morale, previously mentioned, is attained not only through informative talks with them, but through the diplomatic, above-the-board nature of the survey, which avoids personal fault-finding, yet can advise management of promising employees.

2. Improved relations between departments often result from simplification or clarification of procedures.

3. Improved customer relations can result from procedural improvements in those departments which handle customer contacts.

4. Standardization of methods will result from their simplification, with consequent improvement of central control.

5. Improvement of financial audits often results from knowledge attained in surveying.

6. The employee who works on an operational survey develops a broad perspective of the company. The experience he gains in contacting employees and in the meetings he conducts for reviewing the survey can be of great value to the company, particularly in the future.

7. Management can be more effective through greater knowledge of the strength (or weakness) of various departments or functions.

The accounting department enjoys a particular advantage of viewing the company's operations as a whole through the medium of the source documents it receives, thus enabling it to observe situations which should be called to the attention of management and others in order to attain more efficient operations, including the need for additions or changes in company operating policies and lack of uniformity in following prescribed policies and reports; procedure manuals not used because of complexity, volume or inadequate circulation; and others.

Utilities are too often prone to permit employees to work in only one area during their working lives. Too often accountants spend all their working lives in the accounting department. We believe that it would be beneficial to management, as well as to the employee, if certain of the younger accountants with high potential were loaned for a period of time to other divisions of the company, such as the operating and sales. These divisions, in turn, would also send their employees to the accounting department. Such a program would promote a better understanding of the company's operations, and would aid the accountant in his relationships with those areas.

We further believe that visits to other companies and attendance at meetings, such as the Annual Conference of Gas and Electric Utility Accountants, should be encouraged. It is good to know what other utilities are thinking, or what new ideas they are pursuing.

There are many benefits to be derived from sending your "bright young men" to the various management seminars, where they will meet a good cross section of industry, and exchange viewpoints on subjects of interest to all phases of business.

Today the means whereby accountants can improve performance and increase profits come about mostly through simplification, control, or reduction in personnel (or the converse of greater work load without increase in personnel.)

Through self-analysis and work simplification, it is possible to knit the loose ends of an expanding organization into a systematic unit. It must be recognized that glamorous developments, such as electronic accounting, must be constantly explored as a means to improve performance.

We believe accountants can improve performance and increase profits if they have the desire. Why not ask yourself if you honestly are doing the best job possible, or if you have let things drift. Have you changed any of your procedures lately? It is not too late!

Film Available on Electric House Heating

A NEW 18-minute, full-color sound film on electric house heating has been made available by the EEI Live Better Electrically program.

Prepared by Magazine

This film was prepared by the *Saturday Evening Post*, in cooperation with the EEI Residential Electric Heating and Air Conditioning Committee, to show consumers that electric heating is today's modern, effective way to comfortable home heating. The movie illustrates man's progress down through the centuries in bringing warmth into his home. It gives an explanation of the five basic methods of electric house heating, as well as showing three actual installations in homes in Connecticut, Indiana, and Virginia.

This outstanding film was previewed at the recent EEI Sales Conference in Chicago, and received enthusiastic response from the many utility members attending the conference.

Orders for the film may be placed through the Live Better Electrically program, Edison Electric Institute, 750 Third Ave., New York 17, New York, at $55 per print, plus postage.

Final Report —Soil Thermal Resistivity Study

By L. H. Fink

Electrical Research Section, Philadelphia Electric Co.

THE AIEE Committee on Insulated Conductors recently issued a report, "Soil Thermal Characteristics in Relation to Underground Power Cables" (Transactions Paper 60-785),* which was the outcome of a three-year research program conducted at Princeton University. EEI contributed about 40 percent of the cost of this project.

All of us are aware of the magnitude of our industry's capital investment in underground transmission facilities, and of the rate at which this investment is growing. The underground plant, in particular, is expanding rapidly because of the conjunction of continuing load growth with the increasing scarcity of aerial rights-of-way.

As a result of these developments, we find ourselves in many cases working against the upper limits of the current-carrying capacity of our cable systems. One of the chief factors in the establishment of these limits is the thermal resistivity of the soil in which the cable system is installed. In a typical pipe-type system, for instance, a doubling of the soil thermal resistivity will lead to a 25 percent cut in the rating of the system, other factors being equal.

A Lack of Basic Knowledge

Unfortunately, ever since the first installations of underground cable systems, our lack of basic knowledge concerning the actual thermal characteristics of soils has hampered economical loading of those systems. We have been forced to work with conservative factors of safety, which have led to overdesign of the systems, along with associated higher-than-necessary investments, and even so, our systems have sometimes been subjected to overheating, which led to shortened life or failure.

Such practices and errors have always been costly in terms of capital invested, and are becoming more so. Simply stated, we are near the point where it costs more to build into our systems the factors of safety necessitated by the limitations of our knowledge of soil thermal characteristics than it would cost to increase that knowledge to where such overdesign is unnecessary, and we can utilize fully and safely the inherent current-carrying capacities of the systems. The proposed revision of AEIC cable temperature limits places a premium in the form of higher permissible temperatures on the knowledge of factors, such as the exact soil thermal resistivity.

Considerations such as these led to the initiation of the research project at Princeton. Now that the report is in, it is these same considerations which make it well worthwhile for the cable engineer to learn and utilize the results.

What Was Learned

In answering the question, "What have we learned?" I would like to emphasize four points: first, we know that the problem is more complex than we had thought; second, we know that it is therefore necessary to survey carefully the route of a proposed line in order to obtain needed information; third, we know that it is important to design the trench to fit actual conditions, and especially to make certain that backfill is thoroughly compacted; fourth, we have learned of several avenues of further research which should yield profitable results.

1. The Problem Is More Complex than Was Anticipated—To start off on the worst foot, the first point is that the problem is even more complex than we had realized. We knew in advance that soil is a mixture of grains of various materials, shapes, and sizes, some so small as to be indistinguishable to the eye and which form a plastic mass such as clay; others are clearly discernible, as in gritty, sandy soil.

Recognizing the difficulty of analyzing such a conglomeration mathematically, we would expect that, at least in the classical engineering manner, we should be able to collect enough data to be able to formulate

*This paper, together with the discussion at the Summer Meeting, will appear in the 1960 AIEE Transactions.

empirical expressions giving the relationship between the composition of a soil and its thermal resistivity. However, this hope proved illusory.

While certain empirical, and even theoretical, expressions have been developed which work reasonably well over the range of conditions to which they are applicable, their accuracy is not sufficient to relieve the engineer of the necessity for making direct measurements. Moreover, even if such formulae were sufficiently reliable, the problem would still not be solved. Because of the way in which natural soils have been formed, they are not homogenous, but stratified, having been built up in layers during geological periods of time. These layers, called horizons, are not alike, and it is precisely the way that a soil's characteristics vary markedly with depth that provides the distinguishing characteristics by which soil scientists classify soils.

Complexities of Soil Horizons

In our own experience, we recognize that the familiar top soil, which forms the scientists' A-horizon, contains much organic plant refuse. Similarly, while it is not as evident to the eye, most soluble mineral salts have been washed out of this layer and deposited in the subsoil, or B-horizon. The composition of the C-horizon is very close to that of the parent rock material from which the soil in that locality has been formed. The implication of these complexities is that we are not in a position to predict either the actual resistivity of a soil nor its effective resistivity in place.

A further complication is introduced by a phenomenon of moisture migration, of which most of us have heard. This is the effect whereby soil moisture may be moved by a thermal gradient, from a warmer to a cooler region. Since moisture is an important factor in establishing the thermal resistivity of a soil, the movement of soil moisture under natural climatic, or artificially applied gradients, means that even after the effective resistivity of a soil in a given location has been determined, it may not remain constant.

2. The Importance of Surveys—Having confessed what we do not know, we are now in a position to state what we do know. Accordingly, the second point I would like to emphasize is how much we can benefit from careful advance surveys of the routes of proposed cable lines.

Since the thermal resistivity of soil varies over such a wide range, and is subject to so many influences, it is important for us to take the trouble to measure exactly what resistivity we will be working with, and evaluate pertinent environmental influences. For instance, we know of the effect of profile and surface conditions on the amount of rain water which is lost as surface runoff; we know of the possible beneficial effect of the water table if it is, and remains, near enough to the cable depth-of-burial; we know of the effect of plant roots in withdrawing moisture from their zone of influence. Such factors should be noted and taken into account.

Most importantly, however, we should measure the soil density, moisture content, and thermal resistivity. Tools are now available which greatly expedite such readings. These include the thermal needle, which has been available for several years for the measurement of soil resistivity, and more recently, nucleonic probes for the measurement of soil density and moisture content.

The thermal needle is being widely used by an increasing number of utilities. It consists of a steel tube, about one-quarter of an inch in diameter, and six or eight feet long, containing a heating element and a number of thermocouples. When the probe is inserted in the soil and subjected to a constant heat input, its temperature rises at a rate which can be related, by a simple formula, to the thermal resistivity of the soil.

The nucleonic probes have been adopted by many civil engineers for use in connection with the construction of building foundations, highways, and airport runways, and are now being used also by at least one utility for the sort of soil surveys that we are discussing. They are steel tubes about an inch and a half in diameter, and about a foot and a half long. They contain a suitable radioactive source, a suitable detector, and an amplifier. When inserted in a given soil, in an access tube which must be placed in advance, their output, as read on a count-rate meter, may be directly related by means of calibration curves to the soil density and moisture content. The appearance of tools such as these has made feasible the collecting of the information required for the effective design of underground cable systems.

3. The Importance of Proper Trench Design and Construction—Having described our inability to predict in advance the thermal resistivity which will apply to a cable line, and having emphasized the consequent importance of careful surveys which will provide the needed information, my third point is that this information must be utilized to the fullest possible extent in the design and construction of the cable trench. Whatever the backfill that is to be used, whether it be the native soil which is satisfactory and is to be replaced in the trench, or whether it is special, low resistivity backfill, it is important that certain further information concerning the backfill be obtained.

Soil Moisture

We know from our study of moisture migration that this phenomenon takes place only when the soil moisture content is in the range between two values. The upper one of these values, at or beyond which moisture migration does not occur, represents the maximum amount of water that the soil can hold against the force of gravity, and is the moisture content which the soil will maintain during those periods of the year when the loss of moisture through evaporation, from the surface or from plant leaves, is less than the amount of water replaced by precipitation. The lower moisture content, below which moisture migration does not occur, is that at which all capillary water has been lost, and is the moisture which will remain after moisture migration has proceeded to its limit.

It is important for the cable engineer to know the thermal resistivity of his backfill at these two limiting moisture contents, since the upper one is the resistivity which the backfill will exhibit during at least the winter, spring and early summer, and the lower one is the highest resistivity which the soil in the vicinity of the cable will approach if migration should occur and proceed to its limit over a period of several months.

Once the cable engineer has satisfied himself as to the characteristics of the backfill material, he must specify the size of his trench so that the combination of the backfill material and the surrounding native soil will assure him of the effective resistivity which he needs. Simple, direct means for calculating the proper trench size are given in Part V of the AIEE report.

Even the most careful measurement, analysis, and design, however, will not assure a satisfactory installation. One of the most important factors is the proper compaction of the backfill. The density of soil is the most important single factor in determining its thermal resistivity. I have noted that a doubling of the soil thermal resistivity will lead to a 25 percent loss in current-carrying capacity of a pipe-type cable system. I want to emphasize that this doubling of thermal resistivity can result from a 20 percent decrease in soil density, other factors being equal.

Moreover, compaction of the soil has other important results. The denser the soil, the less will its resistivity increase with loss of moisture. Again, with backfill well compacted, the trench will not act as a drainage ditch with respect to the surrounding soil. Finally, we know that plant roots will not grow in very dense compacted soils, so that well compacted backfills will not be susceptible to the growth of plant roots, which would sap moisture from the vicinity of the cable. For all these reasons thorough compaction of the backfill is one of the most important requirements for realizing the current-carrying capacity inherent in a well-designed underground cable system, and it is important enough to warrant extensive efforts to see that proper compaction procedures are followed, and to check on the results after installation.

4. Avenues of Further Research—The last point I wish to make, by way of answer to the question as to what we have learned, is that our studies have pointed out avenues of further research, which promise further substantial gains toward economic realization of the inherent current-carrying capacity of underground cable systems.

One such avenue is the establishment of a closer correlation between soil identification in the field, and evaluation of the thermal characteristics of the soil. Part II of the AIEE report provides a suggested method for field identification of soils, but this represents only a first step.

Much more work needs to be done before we can reliably infer a soil's thermal resistivity from field inspection of certain of its qualities. Again, in view of the importance of compaction, we need to establish a clearly defined, standardized, effective, practical procedure which will ensure our obtaining the desired backfill density from contractors, or other construction forces. Finally, we need to achieve a better understanding of the mechanism of moisture migration. We should understand it well enough not only to recognize conditions under which we might get into trouble, but also to be able to effectively alter those conditions so as to control, or even prevent, the phenomenon. This might someday be accomplished, but not unless we are willing to work toward it, instead of just wishing for it.

By way of summary and conclusion, I want to emphasize that as a result of our recent research project there are savings which can be realized in the construction and operation of underground cable systems, and that further savings may be anticipated in the future. However, the present savings can be realized only if we take the trouble to survey the routes of proposed lines in order to learn the actual situation, if we design our trench to conform to this situation, and, above all, if we make a real effort to ensure the achievement of maximum compaction of the backfill. And future savings can only be achieved through continued careful research.

Underground Systems Reference Book

The 1957 edition, the first in 26 years of this valuable treatise on design, construction, and operation of power cable systems, is still available.

It was prepared by 134 of the electric industry's leading engineering authorities on underground systems, and was written for both field and office use.

The book contains 624 pages; more than 900 illustrations; more than 150 useful tables, listed for convenience at the beginning of the book.

Price per copy—1-9 copies, $11.50 to EEI member companies; $12.50 to non-members, postpaid in the United States. Quantity prices upon request.

Order today from

Edison Electric Institute

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Shareowners' Meeting in-the-Round

More than 2500 shareowners of Pennsylvania Power & Light Co. attended the April 17 annual meeting in-the-round, in a 25,000-square-foot tent at York Haven, Pa. A rotating circular stage in the center kept speakers before the audience.

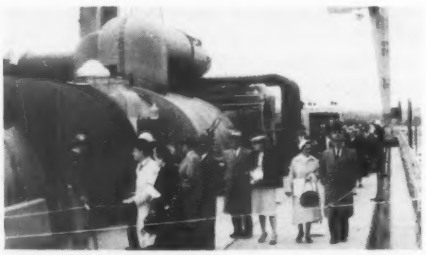
THE shareowners' meeting of Pennsylvania Power & Light Co., April 17, was held in-the-round in a candy-striped, electrically heated tent at the company's new Brunner Island power plant, near York Haven, Pa.

An elevated circular center stage was located at the midpoint of a circular seating arrangement. A revolving section in the center of the stage, which made a complete revolution every eight minutes, kept the audience in front of the speaker.

Some 2500 shareowners, from points as distant as New Orleans and Milwaukee, shattered all PP&L attendance records for an annual meeting. A tour of the 300,000-kilowatt power plant followed the meeting. Displays, exhibits, and signs located along the route explained the equipment functions and provided information on the utility industry. PP&L employees stationed at key locations added further information.

An on-the-scene press room joined the main tent, with an elevated platform to give photographers a clear view of the meeting. Direct-line telephone and staff stenographers also were available.

More than 100 company employees, in addition to tent crews—who erected the 25,000-square-foot tent—railroad personnel, police, and caterers, were required to set up and supervise various details of the meeting. Three special trains were run from Philadelphia, Lancaster and Harrisburg at no cost to shareowners.



A tour of PP&L's 300,000-kw Brunner Island power plant followed the formal business of the utility's 41st annual shareowners' meeting. Special trains were run to Brunner Island from Philadelphia, Harrisburg, and Lancaster, Pa.

Box lunches were provided for the shareowners who came from such distant points as New Orleans and Milwaukee. A question-and-answer period was held. The company said this was the highest attendance record in history.

38 Safety Achievement Awards Are Presented

THIRTY-EIGHT Safety Achievement Award certificates were presented by EEI to 22 member companies between Jan. 1 and April 30, 1961, for achieving 1 million or more man-hours of operation without a serious accident.

Duquesne Light Co.'s Colfax Power Station (Power Stations Department) was awarded a certificate for achieving more than 3 million safe man-hours of operation. Six companies during this period received certificates for reaching the 2-million man-hour mark of safe operation. They included Power Production Departments, Baltimore Gas and Electric Co.; State Line Station—Commonwealth Edison Co. of Indiana, Inc. (Commonwealth Edison Co.); Production Department—Hudson Avenue and Gold Street Stations—Consolidated Edison Co. of New York, Inc.; Entire Company, Oklahoma Gas and Electric Co.; Communication Division, Southern California Edison Co.; Southern Division, Waco, Texas, Texas Power & Light Co.

The complete listing of certificates awarded in the Jan. 1-April 30 period is as follows:

Alabama Power Co.
- Greenville District 1,023,826

Baltimore Gas and Electric Co.
- Power Production Departments..... 2,003,068
- Electric Operating Departments..... 1,077,491

Commonwealth Edison Co.
- State Line Station—Commonwealth Edison Co. of Indiana, Inc..... 2,000,000

Consolidated Edison Co. of New York, Inc.
- Production Department—Hudson Avenue and Gold Street Stations..... 2,000,000
- Westchester Operations 1,000,000
- Commercial Buildings Department—Operation Bureau 1,000,000

Consumers Power Co.
- Northwest Division 1,020,008

Duke Power Co.
- Steam Department 1,002,875
- Riverbend Steam Plant..... 1,023,498

The Detroit Edison Co.
- Entire Company 1,909,569
- Central Heating Department..... 1,054,009

Duquesne Light Co.
- Transmission and Distribution Department—Eastern District 1,000,583
- Power Stations Department—Colfax Power Station 3,000,022

Empire District Electric Co.
- Entire Company 1,000,000

Georgia Power Co.
- Plant Hammond 1,000,245

Gulf States Utilities Co.
- Entire Company 1,000,000

Ohio Edison Co.
- Niles Generating Station..... 1,000,508

Oklahoma Gas and Electric Co.
- Transmission-Distribution Department... 1,000,000
- Entire Company 2,804,603

Pacific Gas and Electric Co.
- San Francisco Division—Electric Department 1,015,722
- San Jose Division—Electric Department. 1,047,924
- San Francisco District—Electric Department 1,000,000

Pennsylvania Power Co.
- Mercer County Division..... 1,072,889

Potomac Electric Power Co.
- Purchasing and Stores Department..... 1,163,400
- Entire Company 1,014,600
- Motor Transportation Division..... 1,008,884

Public Service Electric and Gas Co.
- Testing Laboratory 1,001,597

Southern California Edison Co.
- Communication Division 2,068,591
- Western Substation Division..... 1,000,046
- Entire Company 1,570,805

Texas Power & Light Co.
- Southern Division Distribution — Waco, Texas 2,557,107
- McKinney Transmission Division..... 1,002,179
- Trinidad Steam Electric Station—Operating Department 1,026,544
- Entire Company 1,274,601

Toledo Edison Co.
- Entire Company 1,581,432

Virginia Electric & Power Co.
- Potomac District 1,158,965

West Penn Power Co.
- Power Production 1,317,905

Can EDP Improve Customer Relations?

(Continued from page 142)

seem like a small matter to some, but there is hardly one single thing that can damage customer relations more than incorrect billing.

• Automatic Operation—The peculiar advantage of electronic equipment, and it may be emphasized again and again, is that it is automatic and swift in operation. By virtue of its ability to work from a long sequence of orders stored in the machine itself, lengthy processes can be completed without any action on the part of the operator. Delays and errors, so difficult to cope with satisfactorily in most past systems, can be reduced tremendously. Scheduling the work so that machines are uniformly loaded should be much easier than with punch card systems. Of course, the development of the systems, the programming, and the coding of orders is a time-consuming job, requiring great care.

• Consolidation of Records—I realize this a touchy subject in our business, but let us grapple with it a little anyway. The modern electronic data processing system lends itself beautifully to bringing together all the pieces of the customer's record and, for the most part, I believe this is good. We would then have one place to look for any information about customers, and we could get the complete story without consulting many, many files. We would have only one place to work an order changing the record, and this would solve the old problem of discrepancies between files at any certain time. Of course, this makes it necessary for the one file to be available at many different places, but this problem is slowly being solved with random access. It is too expensive for most of us at this time, but new advances are being made every day toward this end.

• Random Access—Answering customer inquiries is a most important factor in maintaining customer relations. In order to render the service we would like the customer to receive, our data processing system must be designed with three major problems in mind:

> First, only a limited time is available to answer a customer's inquiry, since he is usually waiting on the telephone. Second, calls come in random sequence, so any account in the system should be available regardless of the order received. Third, a large variety of problems cause customers to call the company for information, so we should be prepared to answer any question about any part of the customer's record.

Many manufacturers are producing machines that permit a system to be built which can answer all our needs in this area, but at present it would be very expensive and may not warrant the cost. I am sure that in the not-too-distant future, we will see random access systems installed in many of our companies.

• Training—What about the type of people we have chosen to give the machines their instructions? We all know how important it is that the machine is carrying out company policy as we desire it. I don't believe anyone in any business is more aware of the importance of good training than the people in the customer relations area. I assure you every effort is made to train well those people picked to program the computer, which will affect not only customer relations but every phase of our business. The people who will make good programmers do not have to be mathematicians or engineers. Contrary to an impression which has wide circulation, the only requirements are, I believe, that the people should be open-minded and thoroughly familiar with every detail to be programmed. In this connection, of the total work involved in preparing the necessary instructions to the computer to carry out a particular problem (which is generally called programming), at least 75 percent is systems and procedures analysis, including flow charting. Only the remainder is coding the flow chart into computer language. The manner in which a computer is programmed may have a large bearing on customer relations.

What's Expected from Computers

I certainly am no expert in customer relations, but being at least 50 miles from home and having a computer on order which has not been delivered, I am qualified to talk about what should be expected from computers.

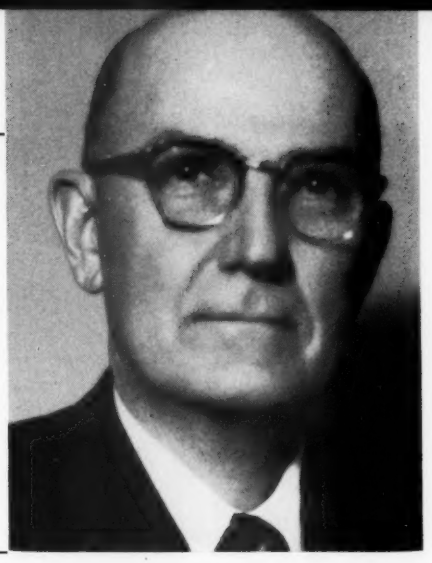
I believe that as times goes on, data processing systems will more and more serve to improve customer relations, and very often it will depend on you people in the customer relations area to tell us what you need. As the computer will work best with consolidated records, we must consolidate our efforts more and more to give the customers better and faster service. If the computer is not giving the results you expect, or you think you could improve the result, tell us, don't tell the elevator operator.

'EEI-NEMA Standards for Distribution Transformers' Available

THE "EEI-NEMA Standards for Distribution Transformers," EEI Pub. No. 60-54, has just been published and is available from the Institute at $1.25 per copy, postpaid in the United States.

This seventh report of the Joint Committee of EEI and NEMA on Standards for Distribution Transformers contains design standards and electrical features of overhead-type, single- and three-phase distribution transformers, rated 500 kv and smaller, high voltage 67,000 volts and below, low voltage 15,000 volts and below.

Fort Worth Salutes J. B. Thomas as the Man of the Year



THE electric industry is in the forefront of the battle in which freedom and opportunity are pitted against the "governmental domination and individual subservience that the dupes and followers of socialism and communism are bent on bringing about," J. B. Thomas, President, Texas Electric Service Co., declared recently as he was awarded the Fort Worth Exchange Club's Golden Deed Award.

Harrington, Vennard, Johnson Speak

Among the speakers who saluted Mr. Thomas as he was honored as the city's Man of the Year were Dr. M. T. Harrington, Chancellor of Texas A&M College; Edwin Vennard, EEI Vice President and Managing Director; and J. L. Johnson, Jr., Chairman of the First National Bank of Fort Worth.

Mr. Thomas joined Texas Power & Light Co. in 1912, shortly after having been graduated from Texas A&M. He became chief engineer in 1921, and in 1930 came to Fort Worth as vice president in charge of operations of the newly organized Texas Electric Service Co. He was elected vice president of the company in 1940, and in 1941 was elected president.

Dr. Harrington cited the research efforts of Mr. Thomas and his company on methods for desalting brackish waters. "They have developed a prototype unit which may well be the forerunner of plants which will economically treat millions of gallons of brackish water daily," Dr. Harrington pointed out. "As a result of this type of dedicated leadership, the people of the State of Texas have on numerous occasions expressed their appreciation to J. B. Thomas."

Among his many service awards, the chancellor said, are plaques for "Top Texan of 1952" by the West Texas Chamber of Commerce; the Fort Worth Chamber of Commerce Award for "Distinguished Achievements" in 1952; and a plaque from the Texas Research League for "wise and outstanding leadership in advancing the cause of better Texas government" in 1958.

Mr. Vennard paid tribute to Mr. Thomas for inspiring "the design of a compact control board for use in power plants." He said Mr. Thomas also pioneered in the construction of outdoor-type power plants, and "in his organizational activities in connection with the Texas Atomic Energy Research Foundation, he may well have laid the groundwork for one of the most important breakthroughs of this century."

"Much credit is also due him and his associates in the planning and announcement of a 345,000-volt, backbone transmission line running from Houston to the Fort Worth-Dallas area," Mr. Vennard said. "This is the latest step in providing a great backbone transmission line for the interconnection of Texas companies for better and more dependable electric service to cities and industry."

Mr. Vennard pointed out that many years ago, when the Southwest Power Administration announced a plan that involved a duplicating set of transmission lines, Mr. Thomas was at the forefront of the action taken to avoid "disastrous wastes of taxpayers' money and avert a long step toward socialization of our industry." It was largely through his efforts that a contract was arrived at that eliminated these duplications, the EEI Managing Director asserted.

"He said years ago that the electric companies are just first on the list," Mr. Vennard said. "If they should be nationalized, other industries, such as steel, railroads, and the like, would soon fall as well."

Most Comprehensive Plan Ever Developed

Mr. Johnson said that Mr. Thomas had brought to Forth Worth the most comprehensive and most celebrated plan for central business district revitalization ever developed—the Gruen Plan for a Greater Fort Worth of Tomorrow, developed by Victor Gruen and Associates, upon assignment from Mr. Thomas.

The bank chairman said that 80 cities throughout the nation are emulating the Gruen Plan, "a long-range plan, something that could never be done overnight."

"I am confident that one day it will be realized, and J. B. Thomas will have left this indelible imprint of his vision upon this city," Mr. Johnson declared.

EEI BULLETIN

1961 Convention Issue
for June

The June, 1961, issue of the EEI BULLETIN will contain all the speeches from the 29th Annual EEI Convention, to be held in New York City, June 5-7, as well as a round-up article on the Convention, the new members of the Board of Directors, and articles on The Edison Award, the new President and Vice President, and remarks of the new President in accepting the post.

This issue of the BULLETIN will be of historical importance to the industry for many years. It will be in two colors, and contain some 100 illustrations.

A limited number of extra copies will be published. Please inform the editor of the BULLETIN now if you wish us to reserve extra copies for your company.

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Carolina P&L Launches Farm Program

Herds of beef cattle on lush pasture land, above, are becoming more and more prevalent in the region served by Carolina Power & Light Co. Greater mechanization through electrification has helped farmers develop several cash crops. J. E. Kaufman, in photo below, CP&L District Manager, inspects catch of hornworm moths made by an electric "bug light" on farm.

AN intensified agricultural development activity aimed at increasing farm income in the two Carolinas has been launched by Carolina Power & Light Co.

This project, which succeeds the company's finer-farm phase of the program for "helping to build a finer Carolina," will be headed by W. J. Ridout, publisher of *Electricity on the Farm* magazine, and former extension specialist in the Carolinas.

D. E. Stewart, CP&L Vice President and Director of Area Development, said, "The many-pronged program will have two ultimate objectives. One will be to stimulate increased farm income in the two states, and the other will be to encourage greater use of electricity on the farm. We believe the farmer will realize larger net income through the efficiencies and economies of extensive electrical mechanization."

North Carolina's Governor Terry Sanford said of the plan: "I wish to congratulate Carolina Power & Light Co. upon its foresightedness in conceiving and getting underway an activity of this character. While North Carolina traditionally has been an agricultural state, it is obvious that our farm operations require constant scrutiny and modernization if they are to keep pace with our total economy. The efforts of progressive private companies are welcomed; they properly complement — and supplement — the work of established state and Federal farm agencies.

"I interpret the company's action in consulting with the executive branch of our state government as a manifestation of its desire to make its agricultural development activities conform to the over-all, long-range objectives of our farm leaders.

"Electric service is one of the many strong bridges between our agricultural and industrial societies."

twenties, our company adopted a policy which generally embodied our present aims; but we feel fortunate indeed to be able to find a man of Mr. Ridout's specific qualifications to direct an intensified effort toward improving the farm economy."

The new development program will be undertaken in an effort to keep the agricultural economy of the Carolinas in step with the rapidly improving industrial complex of the two states. Mr. Stewart said, "In this field, we believe that electric service will play an increasingly vital role."

The new program's director was reared on a farm in Mecklenburg County, Virginia. He was active in 4-H and FFA programs, and in 1939 won his agricultural engineering degree from Virginia Polytechnic Institute. As a rural electrification specialist, he worked with both the North and South Carolina Extension Services between 1943 and 1947.

Mr. Ridout worked extensively in South Carolina during the war years to help farmers maintain and utilize most profitably the available electrical equipment. During his tenure with the N. C. Extension Service, he helped set up the successful 4-H Farm and Home Electrification Program, among other projects.

He left the Extension Service in 1947 to become Rural Sales Manager for Edison Electric Institute. He was named editor of *Electricity on the Farm* in 1950 and was promoted to publisher early this year.

Young Men's Utility Meet Trains Future Leaders

THE training of young employees for future leadership in the electric service industry of Indiana was a major objective of the 21st Annual Young Men's Utility Conference, April 26-27 in Indianapolis.

Indianapolis Power & Light Co. and Mooresville Public Service Co., Inc. were the host companies. Others represented included Public Service Co. of Indiana, Inc., Northern Indiana Public Service Co., Southern Indiana Gas & Electric Co., and Indiana & Michigan Electric Co.

This conference is unique in the national utility industry, as it is planned entirely by employees under the age of 35, sponsored by the Indiana Electric Association. C. E. Ohlman of the Indianapolis company's engineering department was chairman of the General Arrangements Committee.

O. T. Fitzwater, President of Indianapolis Power & Light, and Vice President of the Indiana Electric Association, welcomed the delegates.

Other speakers at the first session were Theodore Shultz of Merrill Lynch, Pierce, Fenner & Smith, Inc., on "Market Place USA—The New York Stock Exchange and Its Operation"; Dr. P. A. Abetti of General Electric Co., on "Project EHV"; and R. J. Kryter, Indianapolis consulting engineer, with narration and pictures on "African Safari."

C. H. Boswell, Indianapolis mayor, spoke at a banquet.

Speakers at the second session were J. A. Hardin of Indiana Bell Telephone Co., on "Microwave, a Building Block in Communication"; K. M. Reid of General Electric Co., on "What's New in Lighting"; and Dr. M. O. Ross, President of Butler University, on "Current Economics in the United States."

Final session speakers were Louis Jewell of Peabody Coal Co., on "Human Engineering"; and Edwin Vennard, Vice President and Managing Director of EEI, on "A Report on Soviet Russia."

All-Electric Apartments to Be Built

GROUND has been broken for a 13-story, all-electric apartment house, the Iroquois, in Philadelphia, which will cost $3,500,000.

Among those who took part in the ceremonies were Philadelphia city officials, representatives of Philadelphia Electric Co., and General Electric Co.

132 Units

The 132-unit apartment house, which is scheduled for completion in 18 months, will feature all-electric heat, cooling, lighting and appliances, supplied by General Electric.

Owner of the Iroquois is the builder, Leonard Polis. Leon Levin is the architect; William A. Lattanze, consulting electrical engineer; Phiolocles Anthopoulos, the structural engineer, and B. Bornstein and Sons, the general contractor.

The luxury apartment house will feature one- and two-bedroom apartments.

Columbia University's Utility Management Workshop Scheduled July 23-Aug. 4

THE annual Columbia University Utility Management Workshop will be conducted at Arden House, Harriman, N. Y., from July 23-Aug. 4.

Nominations Through June

Nominations for this 10th annual utility workshop are being accepted through June on a first-come basis. The workshop will be limited to 36 members. It is conducted by Prof. R. T. Livingston of Columbia's Industrial and Management Engineering Department.

C. E. Kohlhepp, President of New Jersey Power & Light Co.-Jersey Central Power & Light Co., is Chairman of the Columbia Utility Management Workshop Advisory Committee.

The panel for this year's workshop includes Dr. C. A. Arensberg, anthropologist, Columbia University; Dr. H. A. Shepard, sociologist, Case Institute of Technology; Dr. M. P. Toore, psychiatrist, World Federation for Mental Health; and Dr. James Mitchell, psychologist, Brookings Institute.

Prof. Livingston, in describing the workshop, said "it is unique. It does not duplicate internal company training activities, nor courses or programs offered by colleges or universities. The workshop satisfies the essential company training requirement of providing manager development for executives."

Further Information Available

Further information on the workshop may be obtained by writing to Prof. R. T. Livingston, 409 Engineering Bldg., Columbia University, New York 27, N. Y.

Frye Joins EEI as National Defense Aide

E. D. FRYE has joined the staff of EEI and has been assigned to national defense matters and related subjects, Edwin Vennard, Institute Vice President and Managing Director, has announced. Among other duties, he will serve as Secretary to the EEI Task Force on National Defense.

The task force assists the EEI National Defense Committee, which was established to deal with matters pertaining to national defense as they relate to electric utility companies. The task force's first assignment is to study the feasibility of the NEAR system, a home warning system in case of attack, which is designed to utilize electric transmission and distribution lines to carry a special impulse to a warning device installed in individual homes and buldings.

To Assist in Special Studies

In addition, Mr. Frye will assist in special studies conducted by the Institute. Prior to joining EEI, Mr. Frye was employed since 1953 by the Department of Interior (defense activities) as assistant to the Secretary. He was engaged in coordinating mobilization activities, primarily concerned with electric power, but also including petroleum, gas, non-exotic solid fuels, minerals, and fisheries.

Mr. Frye attended the University of North Dakota and George Washington University. He has worked for Douglas Aircraft and served with the American Embassy in Moscow. Prior to joining the Department of Interior, he was employed by a congressman in Washington, D. C.

E. D. FRYE

People in Power

T. L. PERKINS, Chairman of Trustees, The Duke Endowment, and Chairman of the Board, American Cyanamid Co., has been elected Chairman of the Board of Duke Power Co.

T. L. PERKINS

In announcing Mr. Perkins' election, W. B. MCGUIRE, President and chief executive officer of the company, said, "Officers of Duke Power are pleased that Mr. Perkins could accept the post of board chairman, not only because of his wide corporate experience, but also because of the close relationship between Duke Power and The Duke Endowment, which is the majority shareholder in the company."

Mr. Perkins has resigned as board chairman of American Cyanamid, a post he has held since 1958, to devote more time to his offices with Duke Power and The Endowment. He will continue as a director of American Cyanamid, and as a member of its Executive Committee. He is also a director of Morgan Guaranty Trust Co., Pennsylvania Railroad, and Electric Autolite Co.

Mr. Perkins is a senior partner of Perkins, Daniels, McCormack and Collins, founded by his father, the late W. R. Perkins, who was a close advisor of the late James B. Duke. Mr. Perkins is a graduate of the University of Virginia.

H. G. DILLIN, Executive Vice President, San Diego Gas & Electric Co., has been elected President of the utility, succeeding E. D. SHERWIN, who retired as president after 41 years of service with the company. Mr. Sherwin will continue as a member of the board of directors and of the Executive Committee.

Mr. Dillin's association with SDG&E began 37 years ago, when he was first employed as a draftsman. During the following years, he has served successively as salesman, contract clerk, engineer in charge of rates, commercial manager, and vice president in charge of sales. In 1953 he was named executive vice president.

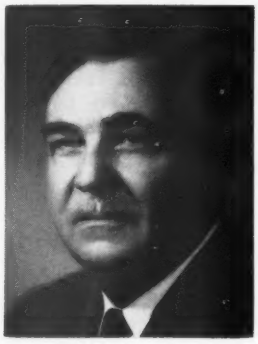
H. G. DILLIN

Mr. Dillin is president, Pacific Coast Gas Association, and vice president and director, Pacific Coast Electrical Association. He is past president of the Electric Club of San Diego. He has been active in civic and community affairs for many years. He is a former vice president, San Diego Chamber of Commerce, and is presently a director of that organization; a member, Executive Committee, United Fund; and a member, Advisory Committee, Boy Scouts of America, San Diego County. He is a past president, San Diego—California Club; former director, San Diego Convention and Tourist Bureau; and former vice president and director, San Diego Fiesta del Pacifico.

J. L. BATES, President of Central Power & Light Co., has been named Chairman of the company. E. S. JOSLIN, Vice President in Charge of Operations, was named General Manager of the utility.

Mr. Bates has been associated with the Texas utility since 1923. He was elected vice president in 1939, and general manager the following year. He was elected president in 1954.

Mr. Joslin started his career with CP&L in 1927 as a local office cashier. He later served as chief clerk, manager, and district manager in Corpus Christi. He was elected vice president and Corpus Christi district manager in 1953. He was named vice president in charge of operations last year.



J. L. BATES

H. L. MANN, President of Iowa Southern Utilities Co., has been elected Chairman of the Board and chief executive officer of the utility. R. W. GREENLEAF, Executive Vice President and Treasurer, was made President of the company.

E. L. SHUTTS, former Chairman of the Board and long-time chief executive officer of Iowa Southern, becomes Honorary Chairman of the Board. He will continue to serve in an advisory and consulting capacity.

Mr. Mann has been connected with the utility industry for 45 years. He started his employment with the Burlington Railway & Light Co. at Burlington in 1916, and continued with that company in various capacities until 1925, when the properties were acquired by Iowa Southern. During that year he was made manager of the company's Charlton district. In 1946 he moved to the gen-

eral offices of the company in Centerville as assistant to the president. He became executive vice president in 1949, and a director in 1950. He has served as president since 1956.

Mr. Greenleaf came to Iowa Southern in 1952 as a vice president, having a background of electric utility experience. He served the company as legal counsel, as a member of the firm of Valentine and Greenleaf, prior to that time. In 1954 he was elected a member of the board, later becoming executive vice president and treasurer. He is a graduate of the State University of Iowa in business administration and law.

In other executive changes, J. R. JONES, Assistant Treasurer, became Treasurer, and J. E. THOMAS, Assistant General Auditor, was named Assistant Treasurer. Mr. Jones is a graduate of St. Louis University in accounting and finance, and came to Iowa Southern in 1958. Mr. Thomas has a wide background in utility accounting, and has been with the company since 1944.

O. J. MILLER, Executive Vice President of Duke Power Co., was named President of the Southeastern Electric Exchange recently at SEE's annual meeting in Boca Raton, Fla.

SEE is an association of 27 utilities serving Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Tennessee, Virginia, and the District of Columbia. It has headquarters in Atlanta.

D. F. KIGAR, Vice President, The Detroit Edison Co., will become Executive Vice President of the company upon the retirement of C. R. LANDRIGAN on Sept. 1.

Mr. Kigar now is vice president in charge of union relations, and is an electrical engineering graduate of Ohio Northern University. He joined the company in 1926 as a mechanical foreman. He later served as standards analyst, and as mechanical equipment buyer, and became assistant manager of purchases in 1947. He was on leave of absence in 1952 as industrial specialist in the U. S. Defense Power Administration. He returned to Detroit Edison as manager of construction, and assumed the duties of manager of union relations in 1953. He was elected vice president in 1957.

F. S. BLACK, Vice President, Administrative, Tampa Electric Co., has been promoted to Executive Vice President of the company.

Mr. Black was elected vice president, administrative, by the board in June, 1959, following a distinguished 10-year period as publisher and editor of *Electrical World* magazine for McGraw-Hill Publishing Co.

Earlier he had served with Nantahala Power and Light Co. and Potomac Electric Power Co. He is an electrical engineering graduate of the University of North Carolina, and also holds a bachelor of laws degree and a master's degree in patent law.

D. C. COOK, Executive Vice President (Legal, Finance, and Accounting), American Electric Power Service Corp., has been elected Vice President and Assistant to the President, American Electric Power Co.

Mr. Cook joined the AEP Service Corp., the service organization of the AEP system, in 1953 as vice president and director. He was elected executive vice president the following year.

Mr. Cook was a member of the Securities and Exchange Commission staff during 1935-45, and was appointed an SEC commissioner in 1949. He was elected vice chairman of the SEC in 1950, and chairman in 1952. He has also been special counsel to the House Committee on Naval Affairs; executive assistant to the Attorney General; director of the Office of Alien Property; and chief counsel to the Preparedness Investigating Subcommittee of the Senate Armed Services Committee.

He holds bachelor's and master's degrees in business administration from the University of Michigan, and the degrees of juris doctor and master of laws from George Washington University.

H. L. MANN

R. W. GREENLEAF

F. R. MCMEEKIN, Vice President of Carolina Electric & Gas Co., has been elected Vice President and General Manager of the company.

A. M. WILLIAMS, JR., Vice President and staff counsel, will become Senior Vice President and, in addition to his duties as staff counsel, will have general supervision of public relations activities, as well as other special assignments.

G. L. DIBBLE, Manager of Engineering, Production, and Transmission, becomes Vice President in Charge of Electric Operations and Engineering.

The new vice president and general manager joined the firm in 1925. In 1950 he was appointed manager of production and transmission. He was named vice president in charge of operations in 1952, and in 1959, Mr. McMeekin was elected to serve as a director and as a member of the Executive Committee. He received a degree in electrical engineering from Clemson College in 1923.

Mr. Williams joined South Carolina Electric & Gas Co. in 1944 as

director of personnel and industrial relations. He was named staff counsel in 1948, and was promoted to vice president in 1959.

He received a degree in textile chemistry at Clemson in 1936. He was graduated from the University of South Carolina Law School.

Mr. Dibble has been with the company since 1946. He became division electrical engineer for the Charleston area in 1950, and in 1952 was named manager of production and transmission, with supervision over all operations of this department in Charleston and Columbia. In 1959, he was elected to the board of directors of the South Carolina Generating Co., and in 1960 became manager of engineering, production and transmission.

He received a degree in electrical engineering at Auburn in 1936.

R. E. WALKER, Systems and Procedures Department Manager, The Cleveland Electric Illuminating Co., has been elected to succeed A. J. PAULL, who has resigned as Vice President, General Services, of the company, due to ill health.

Mr. Walker will head four departments—personnel, purchasing, office building services, and systems and procedures.

S. E. WERTHEIM has succeeded Mr. Walker as systems and procedures department manager.

K. K. KREAMER, Assistant to the Vice President in Charge of Operations, Houston Lighting & Power Co., has been elected Vice President in Charge of Operations.

Mr. Kreamer, a 1928 graduate of Rice Institute, joined the company in 1935 as its oil field power sales engineer. He was named assistant to the vice president in charge of operations in 1956.

In his new post, Mr. Kreamer will supervise power generating operations, construction and maintenance of transmission and distribution facilities, and operations of the company's engineering, dispatching, and transportation departments. A registered professional engineer, he holds a life membership in the Houston Chamber of Commerce, awarded to him in 1957.

R. M. GROGAN, Manager of the Office of Production, Transmission, and Distribution, Long Island Lighting Co., has been named Vice President in charge of that office. F. C. EGGERSTEDT, Vice President in Charge of Finance, was elected Treasurer, and will hold both titles. Senior Attorney C. R. PIERCE was elected Assistant Secretary. V. T. Miles, former Treasurer, has resigned because of illness.

Mr. Grogan has been in the utility business for 30 years. He was graduated in 1928 from the Catholic University of America in Washington, D. C., as an electrical engineer, and joined Long Island Lighting in 1945. After serving in various engineering capacities, he was made manager of the office he now heads as vice president, in June of 1960.

Mr. Eggerstedt, a graduate of Purdue University, joined the company in 1950, and was elected vice president, finance, in 1960.

Mr. Pierce, a graduate of Hofstra College in 1947 and Columbia Law School in 1949, was admitted to the Bar of the State of New York in 1950. He joined the utility's legal department in 1949, and will continue as senior attorney, as well as in the capacity of assistant corporation secretary.

E. H. DUNN, JR., Assistant General Counsel for Florida Power Corp., has been elected Vice President of the company.

Mr. Dunn joined the company's legal department in 1955.

L. E. SLADE, Financial Vice President and Treasurer of Iowa Power and Light Co., has been elected Senior Vice President of the utility.

Mr. Slade will direct the operations of the company, including customer relations and service, and the production, transmission, and distribution of electricity and gas.

Also elected were R. L. MEYER as Treasurer, G. G. GILCHRIST as Secretary, and R. F. MOWEN and HERMAN ZIEG as Assistant Treasurers.

H. D. FELTENSTEIN, JR., Service Sales Director, Central Illinois Light Co., has been elected Vice President of the company. He joined the utility in 1941 as a groundman in the company's Springfield electric department. He was transferred to the gas heating department in 1946. In 1948, he moved to Peoria as sales engineer, and four years later became the Pekin service sales supervisor.

In 1954, Mr. Feltenstein was appointed to take charge of the company's area development activities, when it was decided to accelerate this program. At this time, he was also named public relations director.

In 1955, he was promoted to sales manager of the Peoria division, becoming service sales director for the company in 1956.

G. M. THOMPSON, Secretary and Assistant Treasurer of Potomac Electric Power Co., has retired.

Mr. Thompson completed 27 years of service as an officer of the company. During this period, his contributions, particularly in the fields of corporate administration and finance, reports to stockholders, and personnel retirement policy, have been outstanding.

M. H. GOLDEN, General Manager of the Plymouth County (Mass.) Electric Co., has been named Vice President of the New England Gas and Electric Association subsidiary. Mr. Golden has been in the utility industry since 1926. He joined New Hampshire Gas & Electric Co., also a subsidiary of NEGEA, in 1936. He was made general manager of Plymouth County Gas & Electric in 1950.

M. R. LLEWELLYN, Manager of Gas and Electric Operations, Arizona Public Service Co., has been elected Vice President of the company. He will also continue in his former capacity.

Mr. Llewellyn joined Arizona Edison, an Arizona PS predecessor, in 1947.

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